CHAPTER 10

Waste Treatment and Immobilization Plant

The Waste Treatment and Immobilization Plant (WTP) is the unit designed to treat the mixed (radioactive and dangerous) waste stored in underground tanks at the Hanford Site. The waste will be separated into High-level and Low-level waste streams in a Pretreatment Building. The waste streams are mixed with glass forming additives, heated to 950-1250° C in melters, and poured into containers. The waste is immobilized in the glass matrix. The immobilized waste is transported from the WTP Unit for disposal.

III.10.A. COMPLIANCE WITH APPROVED PERMIT AND ATTACHMENT 51

The Permittees shall comply with all requirements set forth in Attachment 51, including the conditions specified in Permit Conditions III.10.B through III.10.K. Enforceable portions of the application have been incorporated in Attachment 51 and are identified as follows. All sections, figures, and tables included in these portions are also enforceable, unless stated otherwise.

Where information regarding treatment, management, and disposal of the radioactive source, byproduct material, and/or special nuclear components of mixed waste (as defined by the Atomic Energy Act of 1954, as amended) has been incorporated into this permit, it is not incorporated for the purpose of regulating the radiation hazards of such components under the authority of this permit and chapter 70.105 RCW.

ATTACHMENT 51

Chapter 1.0	Part A, Form 3 Permit Application, Revision 1 (December 6, 2001)
Chapter 2.0	Facility Description (Topographic Map)
Chapter 3.0	Waste Analysis Plan
Chapter 4.0	Process Information
Chapter 6.0	Procedures to Prevent Hazards
Chapter 7.0	Contingency Plan
Chapter 8.0	Personnel Training
Chapter 11.0	Closure
Chapter 12.0	Reporting and Recordkeeping
Appendix 1.0	Compliance Schedule
Appendix 2.0	Critical Systems
Appendix 3.0	Drawing Category Table
Appendix 4.0	Piping Material Index Table (RESERVED)
Appendix 5.0	Legends for Process Flow Diagrams and Piping and Instrumentation Diagrams (RESERVED)
Appendix 6.0	Risk Assessment
6.1	Preliminary Risk Assessment Work Plan
6.1.1	Previously Submitted Preliminary Risk Assessment Work Plan
6.1.2	Documentation of Revisions to Preliminary Risk Assessment Work Plan
6.2	Risk Assessment Work Plan (RESERVED)
6.3	Pre-Demonstration Test Risk Assessment Report (RESERVED)
6.3.1	Basis and Assumptions (RESERVED)
6.4	Final Risk Assessment Report (RESERVED)

6.4.1 Basis and Assumptions (RESERVED)

Appendix 7.0 (RESERVED)

Appendix 8.0 Pretreatment Building
8.1 Process Flow Diagrams (RESERVED)
8.2 Piping and Instrumentation Diagrams (RESERVED)
8.3 System Description Documentation (RESERVED)
8.4 General Arrangement Drawings (RESERVED)
8.5 Civil, Structural, and Architectural Criteria and Typical Design Details (RESERVED)
8.6 Mechanical Drawings (RESERVED)
8.7 Specifications (RESERVED)
8.8 Engineering Calculations (RESERVED)
8.9 Material Selection Documentation (RESERVED)
8.10 Critical Systems Equipment/Instrument List (RESERVED)
8.11 IQRPE Reports (RESERVED)
8.12 Installation Plans (RESERVED)
8.13 Instrument Control Logic and Narrative Description (RESERVED)
8.14 Descriptions of Instrument Installation and Testing Procedures (RESERVED)
8.15 Operating Documents (RESERVED)

Appendix 9.0 LAW Building
9.1 Process Flow Diagrams (RESERVED)
9.2 Piping and Instrumentation Diagrams (RESERVED)
9.3 System Description Documentation (RESERVED)
9.4 General Arrangement Drawings (RESERVED)
9.5 Civil, Structural, and Architectural Criteria and Typical Design Details (RESERVED)
9.6 Mechanical Drawings (RESERVED)
9.7 Specifications
9.8 Engineering Calculations (RESERVED)
9.9 Material Selection Documentation (RESERVED)
9.10 Critical Systems Equipment /Instrument List (RESERVED)
9.11 IQRPE Reports (RESERVED)
9.12 Installation Plans (RESERVED)
9.13 Instrument Control Logic, and Narrative Description (RESERVED)
9.14 Descriptions of Instrument Installation and Testing Procedures (RESERVED)
9.15 Demonstration Test Plan (RESERVED)
9.16 Demonstration Test Report (RESERVED)
9.17 Treatment Effectiveness Report (RESERVED)
9.18 Operating Documents (RESERVED)

Appendix 10.0 HLW Building
10.1 Process Flow Diagrams (RESERVED)
10.2 Piping and Instrumentation Diagrams (RESERVED)
10.3 System Description Documentation (RESERVED)
10.4 General Arrangement Drawings (RESERVED)
10.5 Civil, Structural, and Architectural Criteria and Typical Design Details (RESERVED)
10.6 Mechanical Drawings (RESERVED)
10.7 Specifications

10.8 Engineering Calculations (RESERVED)
10.9 Material Selection Documentation (RESERVED)
10.10 Critical Systems Equipment/Instrument List (RESERVED)
10.11 IQRPE Reports (RESERVED)
10.12 Installation Plans (RESERVED)
10.13 Instrument Control Logic and Narrative Description (RESERVED)
10.14 Descriptions of Instrument Installation and Testing Procedures (RESERVED)
10.15 Demonstration Test Plan (RESERVED)
10.16 Demonstration Test Report (RESERVED)
10.17 Treatment Effectiveness Report (RESERVED)
10.18 Operating Documents (RESERVED)

Appendix 11.0 Laboratory Building
11.1 Process Flow Diagrams (RESERVED)
11.2 Piping and Instrumentation Diagrams (RESERVED)
11.3 System Description Documentation (RESERVED)
11.4 General Arrangement Drawings (RESERVED)
11.5 Civil, Structural, and Architectural Criteria and Typical Design Details (RESERVED)
11.6 Mechanical Drawings (RESERVED)
11.7 Specifications (RESERVED)
11.8 Engineering Calculations (RESERVED)
11.9 Material Selection Documentation (RESERVED)
11.10 Critical Systems Equipment/Instrument List (RESERVED)
11.11 IQRPE Reports (RESERVED)
11.12 Installation Plans (RESERVED)
11.13 Instrument Control Logic and Narrative Description (RESERVED)
11.14 Descriptions of Instrument Installation and Testing Procedures (RESERVED)
11.15 Operating Documents (RESERVED)

Appendix 12.0 Balance of Facilities
12.1 Process Flow Diagrams (RESERVED)
12.2 Piping and Instrumentation Diagrams (RESERVED)
12.3 System Description Documentation (RESERVED)
12.4 General Arrangement Drawings (RESERVED)
12.5 Civil, Structural, and Architectural Criteria and Typical Design Details (RESERVED)
12.6 Mechanical Drawings (RESERVED)
12.7 Specifications (RESERVED)
12.8 Engineering Calculations (RESERVED)
12.9 Material Selection Documentation (RESERVED)
12.10 Critical Systems Equipment/Instrument List (RESERVED)
12.11 IQRPE Reports (RESERVED)
12.12 Installation Plans (RESERVED)
12.13 Instrument Control Logic and Narrative Description (RESERVED)
12.14 Descriptions of Instrument Installation and Testing Procedures (RESERVED)
12.15 Operating Documents (RESERVED)

III.10.B STANDARD CONDITIONS AND GENERAL FACILITY CONDITIONS

In addition to the conditions in this chapter, the Permittees must comply with all the applicable portions of the Dangerous Waste Portion and EPA portion of the Resource Conservation and Recovery Act (RCRA) Permit for the Hanford Facility. In the event that a Unit-Specific Condition for the WTP Unit in Conditions III.10.C. through III.10.K. conflicts with a general condition in Conditions I and II of this permit, the Unit-Specific Condition shall apply to the WTP Unit.

III.10.C. UNIT-SPECIFIC CONDITIONS FOR THE WTP UNIT

III.10.C.1 Facility-Specific Definitions and Acronyms

The following definitions are specific to the WTP Unit:

"ash" means a measure of the contribution of particulate matter from the melter feeds to the melter off-gas, as determined by representative sampling and analysis of the melter feed using ASTM Method D-482, or an equivalent method.

"batch" refers to waste staged in one DST designated as mixed waste for transfer to the WTP Unit for treatment.

"continuous monitoring system" means using a device which continuously samples the regulated parameter specified on Permit Tables III.10.H.F, III.10.I.F, III.10.J.F, and III.10.K.F, with the exception of pressure, without interruption, evaluates the detector response at least once every fifteen (15) seconds and computes and records the average value at least every sixty (60) seconds, except during allowable periods of calibration and except as defined otherwise by the CEMS Performance Specifications in 4B and 8A in Appendix B, 40 CFR Part 60. For the parameter pressure, the term "continuous monitoring system" means using a device that continuously samples the pressure without interruption and evaluates the detector response without averaging at least once each second and records the value at least every sixty (60) seconds. In addition, if the AWFCO is engaged due to a pressure exceedance, the pressure value must be recorded.

"cascade event" means when additional waste feed cut-off parameter set points deviate outside the limits specified in Permit Tables III.10.H.F, III.10.I.F, III.10.J.F, and III.10.K.F after waste feed is cut-off, but while waste or waste residues are being managed in HLW and LAW.

"**dangerous and/or mixed waste management unit**" means dangerous and/or mixed waste management units, areas, systems, and sub-systems as defined in Permit Tables III.10.D.A, III.10.E.A through D, III.10.F.A, III.10.G.A, III.10.H.A, III.10.I.A, III.10.J.A, and III.10.K.A.

"dioxin/furan" and **"dioxins and furans"** means tetra-, penta-, hexa-, hepta-, and octa-chlorinated dibenzo dioxins and furans.

"HLW Vitrification System" is defined as specified on Permit Tables III.10.J.A and B, and III.10.K.A and B.

"hourly rolling average" or **"HRA"** shall mean the arithmetic mean of the sixty (60) most recent one-minute readings recorded by the continuous monitoring system.

"LAW Vitrification System" is defined as specified on Permit Tables III.10.H.A and B, and III.10.I.A and B.

"mode of operation" means operation of the LAW Vitrification System or the HLW Vitrification System within set limits for each operating parameter specified in Permit Tables III.10.H.D and F (for LAW) and Permit Tables III.10.I.D and F (for HLW).

"one-minute average" means the average of detector responses calculated at least every sixty (60) seconds from responses obtained at least every fifteen (15) seconds.

"Permittees" means the United States Department of Energy (owner/operator) and Bechtel National, Inc. (co-operator).

"Pretreatment Plant Miscellaneous Unit Systems" is defined as specified on Permit Tables III.10.G.A and B.

"primary sump" means any pit or reservoir that meets the WAC 173-303-040 definition of "tank," and those troughs/trenches connected to it, that serve to collect dangerous/hazardous waste, deliberately introduced (e.g., from decontamination or treatment activities), for transport to TSD facilities.

"rolling average" means the average of all one-minute averages over the averaging period.

"secondary sump" means any pit or reservoir that meets the WAC 173-303-040 definition of "tank," and those troughs/trenches connected to it, that serve to collect dangerous/hazardous waste, not deliberately introduced (e.g., from spills, leaks, or overflows), for transport to TSD facilities.

"standard operating procedure" or "**SOP"** shall mean a written description of the procedures by which a process, equipment, etc. shall be operated. An SOP may be written by the manufacturer and/or the Permittees.

"successful completion of the demonstration test" shall mean operations including a minimum of three test runs without significant interruptions (i.e., each test run was completed on the same day initiated and the samples have been preserved and maintained intact, and one in which sampling of exhaust gas was representative of the LAW Vitrification System or HLW Vitrification System Operations, whichever is applicable, and adequate to achieve evaluation of PODCs destruction and removal efficiency (DRE) to 99.99%).

"TEQ" means toxicity equivalence, the international method of relating the toxicity of various dioxin/furan congeners to the toxicity of 2,3,7,8- tetrachlorodibenzo-p-dioxin.

"pre-process" means prior to introduction into a dangerous or mixed waste management unit at the WTP Unit.

"in-process" means duration of a waste in a dangerous or mixed waste management unit at the WTP Unit.

"post-process" means prior to the introduction into a subsequent dangerous or mixed waste management unit at the WTP Unit or prior to shipment from the WTP Unit.

The following acronyms are specific to the WTP Unit:

AWFCO	Automatic Waste Feed Cut-off
CEMS	Continuous Emissions Monitoring System
CMS	Continuous Monitoring System
DFETP	Dioxin and Furan Emission Test Plan
DRE	Destruction and Removal Efficiency
Dscf	Dry standard cubic feet
ERP	Emergency Response Plan
IHLW	Immobilized High-Level Waste (Glass)

ILAW	Immobilized Low-Activity Waste (Glass)
IQRPE	Independent, qualified, registered, professional engineer
HLW	High-level Waste
LAW	Low Activity Waste
NCR	Nonconformance Report
PODC	Principal Organic Dangerous Constituents
RDTP	Revised Demonstration Test Plan
RPP-WTP	River Protection Project-Waste Treatment Plant
TOC	Total Organic Carbon
WTP	River Protection Project – Waste Treatment and Immobilization Project (also known as the Waste Treatment Plant and Vitrification Plant)
6Mo	Six Percent Molybdenum Alloy
304L	ASTM A240 Grade 304L Stainless Steel
316L	ASTM A240 Grade 316L Stainless Steel

III.10.C.2. General Waste Management

III.10.C.2.a. The Permittees may not commence treatment or storage of dangerous waste or mixed waste in any new or modified portion of the facility until the Permittees have received a Permit modification approval pursuant to Permit Conditions III.10.C.2.e. and III.10.C.2.f., or III.10.C.2.g., and submitted to Ecology, by certified mail, express mail, or hand delivery, a letter signed by the Permittees and a Registered Professional Engineer stating that the facility has been constructed or modified in compliance with the Permit in accordance with WAC 173-303-810(14)(a); and

i. Ecology has inspected the modified or newly constructed facility and finds it is in compliance with the conditions of the Permit, or

ii. Ecology has either waived the inspection or has not, within fifteen business days, after receipt of the Permittees' letter, notified the Permittees of an intent to inspect.

III.10.C.2.b. The Permittees are authorized to accept the dangerous and/or mixed waste specified in Attachment 51, Chapter 1.0 (Part A Form 3) except for those wastes outside the waste acceptance criteria specified in the WAP, Attachment 51, Chapter 3.0 of this Permit as long as the generator has a valid State/EPA identification number.

III.10.C.2.c. All dangerous and/or mixed waste must be managed only in areas authorized for dangerous and/or mixed waste management under the conditions of this Permit, except as allowed under WAC 173-303-200. The authorized dangerous and/or mixed waste management areas of the WTP Unit are specified in Conditions III.10.D through III.10.K. of this Permit.

III.10.C.2.d. Dangerous and/or mixed waste may be transferred from the WTP TSD unit to a permitted TSD only, in accordance with the receiving TSD unit's waste acceptance criteria.

III.10.C.2.e. Permit modifications pursuant to this Permit for dangerous and/or mixed waste at the request of the Permittees must be done according to the three tiered modification system specified in WAC 173-303-830(4) and Condition I.C.3. The Permit modification request must include page changes to the Permit, attachments, and permit application supporting documentation necessary to incorporate the proposed permit modification.

III.10.C.2.f. In addition to other requirements in WAC 173-303-830, within forty-five (45) days of a permit change (i.e., permit modification) being put into effect or approved, the Permittees shall retype the relevant portions of the Permit and attachments, to incorporate the change (if not already reflected in the change pages submitted in the original permit modification request), reprint the documents, and submit them to Ecology. This submittal does not require certification described in WAC 173-303-810(13).

III.10.C.2.g. For permit modifications pursuant to Attachment 51, Appendix 1.0 of this Permit, a draft permit will be prepared and issued by Ecology pursuant to WAC 173-303-830(3)(a)(ii) and WAC 173-303-840. A final permit decision will be issued by Ecology pursuant to WAC 173-303-840.

III.10.C.2.h. RESERVED

III.10.C.2.i. The Permittees shall submit a Part A, Form 3 Permit Application revision for Ecology approval as a permit modification pursuant to Permit Conditions III.10.C.2.e. and III.10.C.2.f., or III.10.C.2.g., in accordance with the schedule in Attachment 51, Appendix 1.0 of this Permit to incorporate changes to Tables III.10.D.A, III.10.E.A through D, III.10.F.A, III.10.G.A, III.10.H.A, III.10.I.A, III.10.J.A, and III.10.K.A, as modified pursuant to the compliance schedule in Attachment 51, Appendix 1.0 of this Permit.

III.10.C.2.j. The Permittees shall submit to Ecology the potential disposal path(s), including the potential authorized TSD facilities, for each waste stream generated at the WTP Unit in accordance with the schedule in Attachment 51, Appendix 1.0 of this Permit for incorporation into the Administrative Record.

III.10.C.2.k. The Permittees shall submit to Ecology, traffic information at the WTP Unit pursuant to WAC 173-303-806(4)(a)(x), in accordance with the schedule in Attachment 51, Appendix 1.0 of this Permit for incorporation into the Administrative Record.

III.10.C.2.l. During operations of the LAW Vitrification System and HLW Vitrification System, pursuant to Permit Sections III.10.H. and J., processing of materials in the LAW and HLW Vitrification Systems that would designate as dangerous waste are fully subject to the requirements of this Permit, excluding the melter feed system as identified in Tables III.10.H.A. and III.10.J.A., respectively. This exclusion does not apply to mixed waste.

III.10.C.3. Waste Analysis

III.10.C.3.a. The Permittees shall maintain adequate knowledge of any waste to be managed properly by the WTP Unit before acceptance, after receipt, and during treatment and storage of these waste. The Permittees will ensure this knowledge through compliance with the requirements of WAC-173-303-300 and with the provisions of the WAP, Attachment 51, Chapter 3.0 of this Permit [WAC 173-303-806(4)(a)(ii), WAC 173-303-300(1)].

III.10.C.3.b. When laboratory analytical methods are required to confirm the Permittees knowledge of the waste, the Permittees must ensure that the sampling and test procedures listed as acceptable by WAC 173-303-110, Appendices II and III to 40 CFR Part 261, the current revision of SW-846, or equivalent methods approved in writing by Ecology are used.

III.10.C.3.c. The Permittees are responsible for obtaining accurate information for each waste stream. Inaccurate waste analysis information provided by the generating site (or unit) is not a defense for noncompliance by the Permittees with the waste management requirements and conditions of this Permit, WAC 173-303, and the LDR in 40 CFR Part 268, as incorporated by reference in Chapter 173-303.

III.10.C.3.d. Records and results of waste analyses described in Conditions II.D.3 or III.10.C.3.e. shall be maintained as described in Condition II.I.1. of this Permit. The WTP Unit operating record

shall include, but not be limited to, information requirements for waste analysis in Conditions I.E.10 and II.I of this Permit.

III.10.C.3.e. Prior to the initial receipt of dangerous and/or mixed waste in the WTP Unit, the Permittees shall submit to Ecology for review and approval a revised WAP and QAPP in Attachment 51, Chapter 3.0 of this Permit as a permit modification pursuant to Conditions III.10.C.2.e and III.10.C.2.f, and Compliance Schedule in Attachment 51, Appendix 1.0. The revised WAP and QAPP shall include:

i. All the elements listed in WAC 173-303-300(5), Condition II.D.3 of this Permit (Waste Analysis), and in compliance with Condition II.E. of this Permit (Quality Assurance/Quality Control).

ii. Requirements that characterization shall be performed on the waste feed prior to transfer to the WTP Unit in conformance with the regulatory data quality objectives supporting the *Tank Waste Remediation System Privatization Project "Regulatory DQO" Process* (Wiemers and others, 1998), as amended. Requirements that the following analyses, at a minimum, shall be conducted on each new batch prior to waste transfer to the WTP Unit, in accordance with the methods under WAC 173-303-110: Ammonia, pH, metals, organic acids, mercury, cyanide, volatiles, semi-volatiles, PCBs/pesticides, anions, TOC, and compatibility (ASTM Method D5058-90). For the purposes of this Permit Condition, a "new batch" is one that has been sampled and analyzed in accordance with the *Tank Waste Remediation System Privatization Project "Regulatory DQO" Process* (Wiemers and others, 1998), and has received no further additions. Further additions require the Permittees to resample and reanalyze, unless an exception is approved by Ecology on a case-by-case basis. Only mixed waste meeting the definition of "new batch", or granted an exception as discussed above, are authorized for transfer to the WTP Unit. Water additions for the purposes of waste transfer are not considered additions for the purposes of this Permit Condition.

iii. Identify and include operating parameters to be monitored/controlled and limitations for these parameters for pre-process, in-process, and post-process operations addressing on a unit specific basis treatment effectiveness, as specified in Tables III.10.E.E through H, III.10.G.C, III.10.H.C, III.10.I.C, III.10.J.C, and III.10.K.C, waste compatibility, safe operation, and compatibility with unit materials of construction. Amend the sampling, analysis, and QA/QC procedures to include these parameters and the monitoring frequency**.**

iv. Requirements that the Permittees shall, for Type I sumps if liquids are detected, and for Type II sumps, as defined in Attachment 51, Chapter 4.0 of this Permit, if liquid levels are outside normal operating parameters, either collect the liquid and return to the treatment process, or designate the sump contents for proper management and disposal prior to removal.

v. For ILAW and IHLW containers, a description of procedures used to verify exterior container surfaces are visually free of mixed waste.

vi. Requirement that wastes generated at the WTP Unit meet the receiving authorized TSD facility waste acceptance criteria prior to a waste stream transfer.

vii. Requirements and criteria for reevaluation of sampling and analysis frequency for all waste streams.

viii. Documentation demonstrating methods for obtaining samples of wastes are representative as discussed in WAC 173-303-110(2).

III.10.C.4. Recordkeeping

III.10.C.4.a. The unit specific portion of the Hanford Facility Operating Record shall include the documentation specified in Attachment 51, Chapter 12.0, General Condition II.I, applicable to the WTP Unit and other documentation specified in Attachment 51. The facility and unit specific record keeping requirements are distinguished in Table 12-1 of the General Information portion, Attachment 33 to the Sitewide Permit, and tied to the associated Sitewide Permit Conditions.

III.10.C.5 Procedure to Prevent Hazards

III.10.C.5.a. The Permittees shall design, construct, and operate the WTP Unit in compliance with Attachment 51, Chapter 6.0, Section 6.1.

III.10.C.5.b. Prior to the initial receipt of dangerous and/or mixed waste in the WTP Unit, the Permittees shall update and resubmit for approval Attachment 51, Chapter 6.0, Sections 6.3, 6.4, and 6.5 as a permit modification pursuant to Permit Conditions III.10.C.2.e and III.10.C.2.f, to be consistent with design details and schedule described in Attachment 51, Appendix 1.0. The WTP Unit fire protection systems shall be constructed to the applicable codes listed in Attachment 51, Chapter 6.0, Section 6.3.1.4. Updated Section 6.4.4. shall include descriptions of the essential loads and critical systems supplied with back-up, un-interruptible, and standby power.

III.10.C.5.c. The Permittees shall inspect the WTP Unit to prevent malfunctions and deterioration, operator errors, and discharges that may cause or lead to the release of dangerous waste constituents to the environment, or a threat to human health. Inspections must be conducted in accordance with the WTP Unit Inspection Schedule, Attachment 51, Chapter 6.0, Section 6.2. Prior to the receipt of dangerous and/or mixed waste in the WTP Unit, the Permittees shall update and resubmit to Ecology for review and approval the Inspection Schedule in Attachment 51, Chapter 6.0 of this Permit as a permit modification pursuant to Permit Conditions III.10.C.2.e and III.10.C.2.f, and Compliance Schedule in Attachment 51, Appendix 1.0. The revised schedule shall include, but not be limited to, i. through v. below. In addition, the Permittees shall submit to Ecology for incorporation into the Administrative Record, the basis for developing Inspection Schedule frequencies:

i. Detailed dangerous and/or mixed waste management unit specific and general inspection schedules and description of procedures (not examples) pursuant to WAC 173-303-395(1)(d), 173-303-630(6), 173-303-640(4)(a)(i) and (6), 173-303-670(7)(b) in accordance with 173-303-680(3), 40 CFR, 264.1101(c)(4). The inspection schedule shall be presented in the form of a table that includes a description of the inspection requirement, inspection frequency, and types of problems to look for during the inspections.

ii. The proposed locations (scaled drawing with layout) and capabilities of camera(s) (i.e., zoom angles, field of view, etc.) to be used for remote inspections.

iii. Schedule and program description for performing integrity assessments as specified in Permit Conditions III.10.E.9.e.i., III.10.G.10.e.i., III.10.H.5.e.i., III.10.I.1.a.v., III.10.J.5.e.i., and III.10.K.1.a.v.

iv. Inspection schedules for <u>leak detection system and</u> control instrumentation to include, but not limited to, valves pressure devices, flow devices, measuring devices, as specified in Permit Conditions III.10.E.9.e.xi, III.10.F.3.c, and III.10.G.10.e.xii, and Permit Conditions III.10.H.5.f.xvi, and III.10.J.5.f.xvi.

v. Inspection schedule shall include inspections for all dangerous and/or mixed waste management units specified in Permit Sections III.10.D, E, F, G, H, I, J, and K.

III.10.C.5.d. The Permittees shall equip the WTP Unit with the equipment specified in Attachment 51, Chapter 6.0, as required by WAC 173-303-340(1) and Condition II.B.1 of this Permit.

III.10.C.5.e. The Permittees shall test and maintain the equipment specified in Attachment 51, Chapter 6.0, as necessary, to assure proper operation in the event of emergency as required by Condition II.B.2 of this Permit.

III.10.C.5.f. The Permittees shall maintain access to communications or alarms pursuant to WAC 173-303-340(2), as provided in the *RPP-WTP Emergency Response Plan*, Attachment 51, Chapter 7.0 as required by Condition II.B.3 of this Permit.

III.10.C.6. Contingency Plan

III.10.C.6.a. The Permittees shall immediately carry out applicable provisions of the *RPP-WTP Emergency Response Plan*, Attachment 51, Chapter 7.0 of this Permit, pursuant to WAC 173-303-360(2), whenever there is a release of dangerous and/or mixed waste or dangerous waste constituents, or other emergency circumstance, any of which threatens human health or the environment.

III.10.C.6.b. Prior to the initial receipt of dangerous and/or mixed waste in the WTP Unit, the Permittees shall update and resubmit the Contingency Plan in compliance with Attachment 51, Chapter 7.0, and pursuant to WAC 173-303-350(5), as a permit modification pursuant to Permit Conditions III.10.C.2.e and III.10.C.2.f, to be consistent with design details and schedule described in Attachment 51, Appendix 1.0.

III.10.C.6.c. After initial receipt of dangerous and/or mixed waste, the Permittees shall review and amend, if necessary, the applicable portions of the Contingency Plan, Attachment 51, Chapter 7.0 of this Permit, and in accordance with the provisions of WAC 173-303-350(5) and WAC 173-303-830(4). The Contingency Plan shall be amended as a permit modification pursuant to Permit Conditions III.10.C.2.e and III.10.C.2.f.

III.10.C.6.d. RESERVED.

III.10.C.6.e. Prior to the initial receipt of dangerous and/or mixed waste in the WTP Unit, the Permittees shall comply with the requirements of WAC 173-303-350(3) and –360(1) concerning the emergency coordinator specific to the WTP Unit in compliance with Permit Condition II.A.4.

III.10.C.7. Training Plan

III.10.C.7.a. Prior to the initial receipt of dangerous and/or mixed waste in the WTP Unit, the Permittees shall update and resubmit, to Ecology for review and approval, the Training Program description in Attachment 51, Chapter 8.0 of this Permit as a permit modification pursuant to Permit Conditions III.10.C.2.e and III.10.C.2.f, and Compliance Schedule in Attachment 51, Appendix 1.0. The revised Training Program description shall include but not be limited to:

i. Detailed unit specific and general Training Program descriptions (not typical) consistent with WAC 173-303-806(4)(a)(xii).

ii. Sufficient detail to document that the training and qualification program for all categories of personnel whose activities may reasonably be expected to directly affect emissions from the LAW and HLW Systems, except control room operators, is appropriately consistent with 40 CFR 63.1206(c)(6)(ii), and for control room operators, is appropriately consistent with 40 CFR 63.1206(c)(6)(i) and 63.1206(c)(6)(iii) through 63.1206(c)(6)(vi) [WAC 173-303-680(2)].

III.10.C.7.b. The Permittees shall ensure that the LAW and HLW Systems are operated and maintained, at all times, by persons who are trained and qualified to perform these and any other duties

that may reasonably be expected to directly affect emissions from the LAW and HLW Systems [WAC 173-303-680(2)].

III.10.C.7.c. The Permittees shall conduct personnel training in accordance with the approved description of the WTP Unit Training Plan, Attachment 51, Chapter 8.0 of this Permit, pursuant to WAC 173-303-330. The Permittees shall maintain documents in accordance with Condition II.C.1. of this Permit and WAC 173-303-330(2) and (3).

III.10.C.7.d. RESERVED.

III.10.C.7.e. The Permittees shall submit, under separate cover, the actual detailed WTP Unit Dangerous Waste Training Plan in accordance with the Compliance Schedule in Attachment 51, Appendix 1.0. The WTP Unit Dangerous Waste Training Plan will be reviewed for compliance with the outline of the training program in Attachment 51, Chapter 8.0 and requirements of WAC 173-303-330. The Training Plan will be incorporated into the Administrative Record.

III.10.C.8. Closure

III.10.C.8.a. The Permittees must conduct closure of the WTP Unit according to the Closure Plan in Attachment 51, Chapter 11.0, and Conditions II.J. (Facility Closure), II.K. (Soil/Ground Water Closure Performance Standards), and III.10.C.8. of this Permit. The closure plan shall be modified according to provisions of WAC 173-303-610(3)(b)(ii).

III.10.C.8.b. Prior to initial receipt of dangerous and/or mixed waste in the WTP Unit, the Permittees shall update and resubmit the Closure Plan, Attachment 51, Chapter 11.0 of this Permit, for approval as a permit modification pursuant to Permit Condition III.10.C.2.g., to be consistent with design details and schedule described in Attachment 51, Appendix 1.0. The updated Closure Plan must be consistent with the closure performance standards specified in Permit Condition II.K, WAC 173-340 and, in addition for Containment Buildings, consistent with 40 CFR 264.1102(b) as referenced by WAC 173-303-695.

III.10.C.8.c. The Permittees shall submit, for Ecology review and approval, an update to the Closure Plan, Attachment 51, Chapter 11.0 within one hundred eighty (180) days prior to commencing partial closure, as a permit modification pursuant to Permit Conditions III.10.C.2.e and III.10.C.2.f.

III.10.C.8.d. One hundred eighty (180) days prior to commencing closure, the Permittees must submit to Ecology, for review and approval, a Sampling and Analysis Plan and a revised Closure Plan as a permit modification pursuant to Permit Conditions III.10.C.2.e and III.10.C.2.f.

III.10.C.8.e. At least forty-five (45) days before initiating closure, the Permittees must provide Notification of Closure pursuant to WAC 173-303-610(3)(c).

III.10.C.8.f. Ecology may require additional sampling and/or investigation after the Permittees implement the approved Sampling and Analysis Plan if Ecology determines that the sampling and analyses have not adequately demonstrated whether clean closure has been achieved. Such a requirement will be implemented pursuant to WAC 173-303-830(3). Additional sampling and analysis may be required for the following reasons:

i. Specialized sample collection or analytical techniques are required to ensure adequate quantitation limits for chemical constituents; or

ii. Results indicate the need to analyze for additional constituents at certain locations; or

iii. Results indicate additional soil or groundwater sampling is required in certain locations; or

iv. Other reasons indicate the Sampling and Analysis Plan has not adequately demonstrated whether clean closure has been achieved.

III.10.C.8.g. RESERVED.

III.10.C.8.h. Documentation supporting the independent registered professional engineer's certification of closure must be submitted to Ecology with the closure certification required by WAC 173-303-610(6). In addition to the items in Attachment 51, Chapter 11.0, the documentation must include the following and other information Ecology may request. The Permittees are required to furnish documentation supporting the independent registered professional engineer's certification to Ecology upon request, until Ecology has notified the Permittees in writing that Ecology agrees with and has accepted the Permittees' closure certification:

i. Sampling procedures that were followed;

ii. soil and concrete locations that were sampled;

iii. Sample labeling and handling procedures that were followed, including chain of custody procedures;

iv. Description of procedures that were followed to decontaminate concrete or metal to meet the clean closure standards as set by Ecology, on a case by case basis, in accordance with the closure performance standards of WAC 173-303-610(2)(a)(ii) and in a manner that minimizes or eliminates post-closure escape of dangerous waste constituents, or to achieve a "clean debris surface" as specified in 40 CFR 268.45, Table 1, concrete surfaces, as incorporated by reference in WAC 173-303-140. [WAC 173-303-610(2)(b)(ii)].

v. Laboratory and field data, including supporting QA/QC summary;

vi. Report that summarizes closure activities;

vii. Copy of all field notes taken by the independent registered professional engineer; and

viii. Copy of all contamination survey results.

III.10.C.9. Critical Systems

II.10.C.9.a. The WTP Unit critical systems, as defined in the Hanford Site-wide Permit definition section, are identified in Attachment 51, Appendix 2.0.

III.10.C.9.b. As the design proceeds, Ecology reserves the right to modify this Permit for reasons described in the WAC 173-303-830(3) to add additional systems to the Critical Systems in Attachment 51, Appendix 2.0.

III.10.C.9.c. The Permittees shall conduct all construction subject to this Permit in accordance with the approved designs, plans, and specifications that are required by this Permit, except as specified in Conditions III.10.C.9.d. or III.10.C.9.e. For purposes of Conditions III.10.C.9.d. and III.10.C.9.e., the Ecology representative will be an Ecology construction inspector, project manager, or other designated representative of Ecology.

III.10.C.9.d. The Permittees shall submit a nonconformance report (NCR) to the Ecology representative, as applicable, within five (5) calendar days of the Permittees becoming aware of incorporation of minor nonconformance from the approved designs, plans, and specifications into the construction of critical systems, as defined in the Hanford Site-wide Permit definition section. Such minor nonconformance shall be defined, for the purposes of this Permit Condition, as nonconformance that is necessary to accommodate proper construction and the substitution of the use of equivalent or superior materials or equipment that do not substantially alter the Permit conditions or reduce the capacity of the facility to protect human health or the environment. Such minor nonconformance shall not be

considered a modification of this Permit. If Ecology determines that the nonconformance is not minor, it will notify the Permittees in writing that a permit modification is required for the deviation and notify the Permittees in writing whether prior approval is required from Ecology before work proceeds which affect the nonconforming item.

III.10.C.9.e. The Permittees shall formally document, with a nonconformance report (NCR), incorporation of minor nonconformance from the approved designs, plans, and specifications into the construction of non-critical systems subject to this Permit. Such minor nonconformance shall not be considered a modification of this Permit. All nonconformance reports shall be maintained in the WTP Unit Operating Record and shall be made available to Ecology upon request or during the course of an inspection. If Ecology determines that the nonconformance is not minor, it will notify the Permittees in writing that a permit modification is required for the deviation and whether prior approval is required from Ecology before work proceeds which affects the nonconforming item.

III.10.C.9.f. For each Critical System identified in Attachment 51, Appendix 2.0 or meets the definition of Critical System as defined in this Permit, the Permittees shall submit to Ecology for review and approval, following the schedule in Attachment 51, Appendix 1.0 of this Permit, the information identified in Permit Conditions III.10.D.10., III.10.E.9., III.10.F.7., III.10.G.10., III.10.H.5., and III.10.J.5. Information Ecology determines to incorporate into the Permit will follow the Permit Condition III.10.C.2.g. process, unless stated otherwise within the specific permit condition. Information Ecology determines necessary to support design basis will be incorporated into the Administrative Record.

III.10.C.9.g. Upon completion of the WTP Unit construction subject to this Permit, the Permittees shall produce as-built drawings of the project which incorporate the design and construction modifications resulting from all change documentation as well as modifications made pursuant to Permit Conditions III.10.C.2.e., III.10.C.2.f., and III.10.C.2.g. The Permittees shall place the as-built drawings into the operating record within twelve (12) months of completing construction.

III.10.C.9.h. The Permittees shall formally document changes to approved designs, plans, and specifications with design change documentation [e.g., Design Change Authorization (DCA), Design Change Notice (DCN), Field Change Request (FCR), Field Change Notice (FCN)]. All design change documentation shall be maintained in the WTP Unit unit-specific Operating Record and shall be made available to Ecology upon request or during the course of an inspection. For any design change documentation affecting any critical systems, the Permittees shall provide copies to Ecology within five (5) working days. Identification of critical systems shall be included by the Permittees in each WTP Unit unit-specific dangerous waste permit application, closure plan, or permit modification, as appropriate.

III.10.C.9.i. Ventilation system duct work is not required to be doubly contained within the WTP Unit. However, upon discovery of accumulation of liquids, a compliance plan will be submitted within sixty (60) days of discovery to correct the problem.

III.10.C.10 Equivalent Materials

III.10.C.10.a. If certain equipment, materials, and administrative information (such as names, phone numbers, addresses) are specified in this Permit, the Permittees may use equivalent or superior substitutes. Use of such equivalent or superior items within the limits (e.g., ranges, tolerances, and alternatives) already clearly specified in sufficient detail in Attachment 51 of this Permit, are not considered a modification of this Permit. However, the Permittees must place documentation of the substitution, accompanied by a narrative explanation and the date the substitution became effective in the operating record within seven (7) days of putting the substitution into effect, and submit documentation of the

substitution to Ecology. Upon review of the documentation of the substitution, if deemed necessary, Ecology may require the Permittees to submit a permit modification in accordance with Permit Conditions III.10.C.2.e. and III.10.C.2.f.

Note: The format of tables and forms contained in Attachment 51 of this Permit are not subject to the requirements of this Permit, and may be revised at the Permittees' discretion.

III.10.C.10.b. If Ecology determines that a substitution was not equivalent to the original, they will notify the Permittees that the Permittees' claim of equivalency has been denied, of the reasons for the denial, and that the original material or equipment must be used. If the product substitution is denied, the Permittees shall comply with the original approved product specification, find an acceptable substitution, or apply for a permit modification in accordance with Permit Conditions III.10.C.2.e. and III.10.C.2.f.

III.10.C.11. Risk Assessment

III.10.C.11.a. The Permittees shall submit, in accordance with Attachment 51, Appendix 1.0 of this Permit to Ecology for approval, the "Previously Submitted Risk Assessment Workplan," Attachment 51, Appendix 6.1.1. of this Permit, revised in consultation with Ecology to address the revisions (NOD/responses) documented in Attachment 51, Appendix 6.1.2 and updated to address the following, as a permit modification pursuant to Permit Conditions III.10.C.2.e. and III.10.C.2.f. The updated previously submitted Risk Assessment Work Plan shall be added to Attachment 51 as Appendix 6.2 (Risk Assessment Work Plan).

i. EPA guidance for performance of Human Health and Ecological Risk Assessments for Hazardous Waste Combustion Facilities current at the time of the submittal;

ii. Toxicity data current at the time of the submittal;

iii. Compounds newly identified or updated emissions data from current waste characterization and emission testing;

iv. Air modeling updated to include stack gas parameters based on most current emissions testing and WTP Unit design;

v. Physical/transport properties of constituents current at the time of the submittal;

vi. Process Description based on most current WTP Unit design;

vii. Emissions data and all supporting calculations based on most current WTP Unit; and

viii. Update of receptor locations based on land use or land use zoning changes, if any.

III.10.C.11.b. The Permittees shall submit for Ecology approval, prior to initial receipt of dangerous and/or mixed waste in the WTP Unit, a Pre-Demonstration Test Risk Assessment Report as Attachment 51, Appendix 6.3 addressing direct and indirect human health and ecological risks performed pursuant to Ecology approved work plan under Permit Condition III.10.C.11.a. This report shall also include submittal of projected stack emissions data in Tables III.10.G.D., III.10.H.E., and III.10.J.E. of this Permit and Attachment 51, Appendix 6.3.1 (Basis and Assumptions), completed and updated which details the basis and assumptions for these emissions, including but not limited to, projected operating conditions, feed-rates, and treatment effectiveness, consistent with information provided and approved pursuant to Permit Conditions III.10.G.6., III.10.G.10., III.10.H.5., and III.10.J.5. as a permit modification pursuant to Permit Conditions III.10.C.2.e. and III.10.C.2.f.

III.10.C.11.c. Within ninety (90) days of Ecology approval of the Demonstration Report(s) submitted pursuant to Permit Condition III.10.H.3.d.i, the Permittees shall submit a Final Risk Assessment Report as Attachment 51, Appendix 6.4, incorporating the emission test results

from the Demonstration Report(s). The Final Risk Assessment Report shall be prepared in accordance with the Risk Assessment Work Plan, as approved by Ecology pursuant to Permit Condition III.10.C.11.a, except the following updates are hereby incorporated. The Permittees shall also submit with this Final Risk Assessment Report, Tables III.10.G.D. and III.10.I.E. of this Permit and Attachment 51, Appendix 6.4.1 (Basis and Assumptions) updated to incorporate the emissions data from this Final Risk Assessment Report(s), as a permit modification pursuant to Permit Conditions III.10.C.2.e. and III.10.C.2.f.

i. Toxicity data current at the time of the submittal;

ii. Compounds newly identified or updated emissions data from current waste characterization and emission testing;

iii. Air modeling updated to include stack gas parameters based on most current emissions testing;

iv. Physical/transport properties of constituents current at the time of the submittal;

v. Update of receptor locations based on land use or land use zoning changes, if any;

vi. Process description based on current WTP Unit design;

vii. Emissions data and all supporting calculations based on current WTP Unit; and

viii. Data from final risk assessment report pursuant to Permit Condition III.10.C.11.d, if available first, or simultaneously.

III.10.C.11.d. Within ninety (90) days of Ecology approval of the Demonstration Report(s) submitted pursuant to Permit Condition III.10.J.3.d.i, the Permittees shall submit a Final Risk Assessment Report as Attachment 51, Appendix 6.4, incorporating the emission test results from the Demonstration Report(s). The Final Risk Assessment Report shall be prepared in accordance with the Risk Assessment Work Plan, as approved by Ecology pursuant to Permit Condition III.10.C.11.a, except the following updates are hereby incorporated. The Permittees shall also submit with this Final Risk Assessment Report, Tables III.10.G.D. and III.10.K.E. of this Permit and Attachment 51, Appendix 6.4.1 (Basis and Assumptions) updated to incorporate the emissions data from this Final Risk Assessment Report, as a permit modification pursuant to Permit Conditions III.10.C.2.e. and III.10.C.2.f.

i. Toxicity data current at the time of the submittal;

ii. Compounds newly identified or updated emissions data from current waste characterization and emission testing;

iii. Air modeling updated to include stack gas parameters based on most current emissions testing;

iv. Physical/transport properties of constituents current at the time of the submittal;

v. Update of receptor locations based on land use or land use zoning changes, if any;

vi. Process description based on current WTP Unit design;

vii. Emissions data and all supporting calculations based on current WTP Unit; and

viii. Data from final risk assessment report pursuant to Permit Condition III.10.C.11.c, if available first, or simultaneously.

III.10.C.11.e. The Final Risk Assessment Report(s) required by Permit Conditions III.10.C.11.c. and III.10.C.11.d. may be combined, or provided separately, as appropriate.

III.10.C.12 Air Emissions

III.10.C.12.a Prior to installing or using any equipment subject to the requirements of WAC 173-303-690, the Permittees shall obtain a Permit Modification following the Permit Condition III.10.C.2.g. process to incorporate WAC 173-303-690 standards into the permit application and this Permit prior to generation/receipt of dangerous and/or mixed waste in the WTP Unit.

III.10.C.12.b Prior to installing or using any equipment subject to the requirements of WAC 173-303-691, the Permittees shall obtain a Permit Modification following the Permit Condition III.10.C.2.g. process to incorporate WAC 173-303-691 standards into the permit application and this Permit prior to generation/receipt of dangerous and/or mixed waste in the WTP Unit.

III.10.C.12.c The Permittees shall comply with the organic air emission standards as set forth in WAC 173-303-692. The Permittees shall obtain a permit modification following the Permit Condition III.10.C.2.g. process to incorporate WAC 173-303-692 standards into the permit application and this Permit prior to generation/receipt of dangerous waste in the WTP Unit.

III.10.C.13 Remote Data Access

Onsite, unrestricted, twenty-four (24) hour access to key WTP Unit operating data and emissions monitoring data shall be provided to Ecology. This onsite, unrestricted access shall include providing and maintaining for Ecology only use a computer terminal and printer linked to key WTP Unit operating data and emissions monitoring data. This terminal shall be equipped with all necessary software and hardware to monitor, retrieve, and trend this data. Additional remote access will be provided on Ecology request if security concerns can be addressed.

III.10.C.14. Performance Test Demonstrations

The performance test program will demonstrate that the melter and melter off-gas systems are capable of 99.99% Destruction Removal Efficiency (DRE) for organics pursuant to Permit Conditions III.10.H.1.b.i. and III.10.J.1.b.i. The test program will include analyses and a demonstration with a pilot scale melter using high concentrations (above rated design limits) of organic spikes in order to obtain detectable output concentrations upon which to determine DRE. The pilot scale performance test plan will be submitted by the Permittees to Ecology by January 31, 2004. Ecology approval of the of the pilot scale melter test plan is expected by March 31, 2004. Demonstration of compliance with the 99.99% DRE listed in Permit Conditions III.10.H.1.b.i. and III.10.J.1.b.i. in the pilot scale melter shall be conducted in accordance with the approved pilot scale melter test plan and completed by November 15, 2004. If the test compromises the ability of the melter to continue operations due to high organic spikes, as defined by the approved pilot scale test performance test plan, then no further full-scale, high-organic demonstration testing on the WTP Unit melters shall be required. The testing of the installed, operational WTP Unit melters and off-gas systems will use pilot scale pilot melter test data and revised WTP Unit test parameters for the full scale demonstration test.

The pilot scale performance test plan will include the following information:

i. Discussion on how the pilot scale melter reasonably simulates operations in the LAW and HLW Vitrification Systems;

ii. Identification of high organic spikes test levels, spiking methods, and types of chemicals to be used for spiking;

iii. Definition of expected waste feed organic content (concentration and types), plus sugar content, plus organic spike content (concentration and types);

iv. Identification of proposed test conditions, including consideration of testing combined organics and metals, as well as separate metal and organic testing; and

v. Identification of the criteria for test success or failure and a discussion of how the results will be interpreted.

Results from the Test Report will be incorporated into the full-scale demonstration test.

III.10.D. CONTAINERS

III.10.D.1. Container Storage Areas and Storage Limits

III.10.D.1.a. The Permittees may store, in containers, all dangerous and/or mixed waste listed in the Part A, Forms Attachment 51, Chapter 1.0 of this Permit**,** in accordance with the WAP, Attachment 51, Chapter 3.0 of this Permit, as approved pursuant to Permit Conditions III.10.C.3. and III.10.C.2. Total containerized dangerous and/or mixed waste storage at the Facility shall not exceed 2,780,000 gallons (372,520 cubic feet) pursuant to requirements in Permit Condition III.10.D.1.b.

III.10.D.1.b. The Permittees may place and store dangerous and mixed waste only in approved container storage areas and containment systems listed in Permit Tables III.10.D.A, III.10.D.B, and III.10.D.C (as approved/modified pursuant to Permit Condition III.10.D.10.), in accordance with Permit Section III.10.D, and in accordance with Attachment 51, Chapters 1.0 and 4.0, and Attachment 51, Appendices 9.4, 9.5, 9.7, 9.8, 9.9, 9.18, 10.4, 10.5, 10.7, 10.8, 10.9, 10.18, 12.4, 12.5, 12.7, 12.8, 12.9, and 12.15 of this Permit, as approved pursuant to Permit Conditions III.10.D.10.b. through d. The Permittees shall limit the total volume of waste to quantities specified for the individual container storage areas listed in Permit Table III.10.D.A.

III.10.D.1.c. The Permittees must maintain a free volume (i.e., free volume = total capacity of containment system minus volume occupied by equipment and containers within containment systems) within containment systems identified in Permit Tables III.10.D.B and III.10.D.C (as approved/modified pursuant to Permit Condition III.10.D.10.), equal to ten percent (10%) of the total volume of dangerous and mixed waste stored within the containment system, or the volume of the largest container stored within the containment system, whichever is greater.

III.10.D.1.d. The Permittees shall maintain documentation in the operating record for each container storage area and containment system listed in Permit Tables III.10.D.A, III.10.D.B, and III.10.D.C (as approved/modified pursuant to Permit Condition III.10.D.10.), in accordance with WAC 173-303-380.

III.10.D.1.e. For the purpose of determining compliance with container storage area capacity limits and containment system requirements, every waste container shall be considered to be full.

III.10.D.1.f. If the containers of ILAW and/or IHLW are determined to no longer be dangerous and/or mixed waste as described in WAC 173-303-070, the ILAW and/or IHLW containers will no longer be subject to the conditions of this Permit.

III.10.D.2 Container Storage Areas Design and Construction

III.10.D.2.a. The Permittees shall construct container storage areas identified in Permit Table III.10.D.A (as approved/modified pursuant to Permit Condition III.10.D.10.), as specified in all applicable drawings and specifications in Attachment 51, Appendices 9.4, 9.5, 9.7, 9.8, 9.9, 10.4, 10.5, 10.7, 10.8, 10.9, 12.4, 12.5, 12.7, 12.8, and 12.9 of this Permit, as approved pursuant to Permit Condition III.10.D.10.b.

III.10.D.2.b. The Permittees shall construct all permanent containment systems identified in Permit Table III.10.D.B (as approved/modified pursuant to Permit Condition III.10.D.10.), as specified in

all applicable drawings and specifications in Attachment 51, Appendices 9.4, 9.5, 9.7, 9.8, 9.9, 10.4, 10.5, 10.7, 10.8, 10.9, 12.4, 12.5, 12.7, 12.8, and 12.9 of this Permit, as approved pursuant to Permit Condition III.10.D.10.b.

III.10.D.2.c. All container storage areas and containment systems identified in Permit Tables III.10.D.A, III.10.D.B, and III.10.D.C (as approved/modified pursuant to Permit Condition III.10.D.10.), must be constructed, or operated to protect containers from contact with accumulated liquids (e.g., leaks, spills, precipitation, fire water, liquids from damaged or broken pipes) [WAC 173-303-630(7)(a)(i) and WAC 173-303-630(7)(c)(ii)].

III.10.D.2.d. Modifications to approved design, plans, and specifications in Attachment 51 of this Permit for the Container Storage Areas and containment systems shall be allowed only in accordance with Permit Conditions III.10.C.2.e. and f., or III.10.C.2.g, III.10.C.9.d, e., and h.

III.10.D.3. Container Storage Area and Permanent Containment System Installation

III.10.D.3.a. RESERVED.

III.10.D.3.b. The Permittees shall obtain and place in the WTP Unit operating record, within thirty (30) days of completion of each container storage area and containment system identified in Permit Tables III.10.D.A, and III.10.D.B (as approved/modified pursuant to Permit Condition III.10.D.10.), written statements by a qualified, installation inspector or a qualified registered, professional engineer, attesting that these areas were installed in compliance with WAC 173-303-630(7)(a), (b), and (c) [WAC 173-303-630(7), WAC 173-303-340].

III.10.D.4 Container Management Practices

III.10.D.4.a. No dangerous and/or mixed waste shall be managed in the container storage areas unless the operating conditions specified under Permit Condition III.10.D.4. are complied with.

III.10.D.4.b. The Permittees shall manage all containerized dangerous and mixed waste for container storage areas and containment systems identified in Permit Tables III.10.D.A, III.10.D.B, and III.10.D.C (as approved/modified pursuant to Permit Condition III.10.D.10.), in accordance with procedures described in Attachment 51, Chapter 4.0, Appendices 9.18, 10.18, and 12.15 of this Permit, as approved pursuant to Permit Condition III.10.D.10.c, and the following conditions:

i. The operating records and waste tracking procedures shall indicate all times at which containerized dangerous and mixed waste were removed from and returned to designated staging, storage, segregation, and treatment areas as approved pursuant to Permit Condition III.10.D.10.c.vi. (WAC 173-303-380).

ii. The physical arrangement (i.e., spacing) of dangerous and mixed waste containers shall be as specified in WAC 173-303-630(5)(c), except for the immobilized LAW and HLW waste containers, which must be as described in Attachment 51, Chapter 4.0, Section 4.2.1.2.1. of this Permit, as updated pursuant to Permit Condition III.10.D.10.c.i.

iii. All container storage areas and containment systems must be operated to protect containers from contact with accumulated liquids resulting from leaks, spills, or precipitation [WAC 173-303-630(7)(a)(i) and (c)(ii)].

iv. At all times, the Permittees shall place and store ignitable and/or reactive dangerous and/or mixed waste in accordance with the procedures described in Attachment 51, Appendix 9.18, 10.18, and 12.15, as approved pursuant to Permit Condition III.10.D.10.c.xi.

v. At all times, the Permittees shall place and store incompatible dangerous and/or mixed waste in accordance with the procedures described in Attachment 51, Appendix 9.18, 10.18, and 12.15, as approved pursuant to Permit Condition III.10.D.10.c.xii.

vi. At all times, storage containers holding dangerous and/or mixed waste that contain free liquids and/or exhibit either the characteristic of ignitability or reactivity as described in WAC 173-303-090(5) or (7), must be provided with a containment system in accordance with WAC 173-303-630(7)(a)(i) through (iii) [WAC 173-303-630(7)(c)].

vii. At all times, containers holding dangerous and/or mixed waste in container storage areas must be closed, except when it is necessary to add or remove waste [WAC 173-303-630(5)(a)].

viii. At all times, containers holding dangerous and/or mixed waste must not be opened, handled, or stored in a manner which may rupture the container or cause it to leak [WAC 173-303-630(5)(b)].

ix. A storage container holding a dangerous and/or mixed waste that is incompatible with any waste or other materials stored nearby in other containers, piles, open tanks, or surface impoundments must be separated from the other waste or materials or protected from them by means of a dike, berm, wall, or other device (as approved by Ecology) [WAC 173-303-630(9)(c)].

x. If a container holding dangerous and/or mixed waste is not in good condition (e.g., exhibits severe rusting, apparent structural defects, or any other condition that could lead to container rupture or leakage) or is leaking, the Permittees shall manage the container in accordance with procedures described in Attachment 51, Appendices 9.18, 10.18, and 12.15 of this Permit, as approved pursuant to Permit Condition III.10.D.10.c.viii. [WAC 173-303-630(2)].

xi. The Permittees shall maintain an adequate inventory of containers and/or over-pack containers at the WTP Unit for use pursuant to Permit Condition III.10.D.4.b.x.

xii. The Permittees shall ensure that all containers used for dangerous and/or mixed waste management, are made of or lined with materials which will not react with and are otherwise compatible with the waste to be stored [WAC 173-303-630(4)].

xiii. Except for lab packs assembled in compliance with WAC 173-303-161 requirements, the Permittees shall not place incompatible wastes, or incompatible wastes and materials, in the same container, unless WAC 173-303-395(1)(b) is complied with [WAC 173-303-630(9)(a)].

xiv. The Permittees shall not place dangerous and/or mixed waste in an unwashed container that previously held an incompatible waste or material [WAC 173-303-630(9)(b)].

III.10.D.5. Identification of Containers and Container Storage Areas

III.10.D.5.a. Pursuant to WAC 173-303-630(3), the Permittees shall ensure that all dangerous and/or mixed waste containers (except as otherwise specified in Attachment 51, Chapter 4.0, Section 4.2.1.3., as updated pursuant to Permit Condition III.10.D.10.c.i., for containers of ILAW and IHLW) are labeled in a manner that adequately identifies the major risk(s) associated with the contents. For purposes of container labeling, major risk(s) could include but are not limited to the following:

i. PERSISTENT (if a WP01 or WP02 waste code);

ii. TOXIC (if a WT01, WT02, or D waste code other than D001, D002, or D003);

iii. FLAMMABLE (if a D001 and other waste codes);

iv. CORROSIVE (if a D002 and other waste codes);

v. REACTIVE (if a D003 and other waste codes).

III.10.D.5.b. For all dangerous and mixed waste containers (except as otherwise specified in Attachment 51, Chapter 4.0, Section 4.2.1.3., as updated pursuant to Permit Condition III.10.D.10.c.i., for containers of ILAW and IHLW), the Permittees shall ensure that:

i. Labels are not obscured or otherwise unreadable;

ii. Waste containers are oriented so as to allow inspection of the labels identified in Permit Conditions III.10.D.5.a and III.10.D.5.b, the container tracking number, and, to the extent possible, any labels which the generator placed upon the container; and

iii. Empty dangerous and mixed waste containers, as defined by WAC 173-303-160(2), must have their dangerous and/or mixed waste labels destroyed or otherwise removed immediately upon being rendered empty.

III.10.D.5.c. The Permittees shall post entrances and access points to all ILAW and IHLW container storage areas, and any other areas where containers of ILAW and IHLW are handled, with signs that, in addition to meeting the requirements of WAC 173-303-310(2)(a), clearly identify the major risk(s) associated with the containers of ILAW and IHLW.

III.10.D.6. Containment Systems

III.10.D.6.a. Containerized dangerous and mixed waste, and other materials that are incompatible, shall not be staged, segregated, or stored within the same containment system as identified in Permit Tables III.10.D.B. and III.10.D.C., as approved/modified pursuant to Permit Condition III.10.D.10. (e.g., metal pan, concrete berm, portable containment system) [WAC 173-303-630(9)(c)].

III.10.D.6.b. The integrity of containment systems identified in Permit Tables III.10.D.B. and III.10.D.C. (as approved/modified pursuant to Permit Condition III.10.D.10.) must be maintained in accordance with WAC 173-303-630(7)(a)(i). Cracks, gaps, loss of integrity, deterioration, corrosion, or erosion of containment pads, joints in containment pads, berms, curbs, trenches, sumps, and coatings must be repaired in accordance with Attachment 51, Chapter 6.0 of this Permit, as approved/modified pursuant to Permit Conditions III.10.D.10.c.vii., III.10.C.5.b., and III.10.C.5.c. [WAC 173-303-320, WAC 173-303-630(7)(a)(i)].

III.10.D.6.c. An impermeable coating, as specified in Attachment 51, Appendices 9.4, 9.5, 9.7, 9.8, 9.9, 10.4, 10.5, 10.7, 10.8, 10.9, 12.4, 12.5, 12.7, 12.8, and 12.9 shall be maintained for all concrete containment systems identified in Permit Table III.10.D.B (as approved/modified pursuant to Permit Condition III.10.D.10.) and shall meet the following performance standards [WAC 173-303-630(7)(a)]:

i. The coating must seal the containment system surface such that no cracks, seams, or other pathways through which liquid could migrate are present;

ii. The coating must be of adequate thickness and strength to withstand the normal operation of equipment and personnel within the given area such that degradation or physical damage to the coating or lining can be identified and remedied before waste could migrate from the containment system; and

iii. The coating must be compatible with the waste managed in the containment system.

III.10.D.6.d. The Permittees must inspect all containment systems specified in Permit Tables III.10.D.B and III.10.D.C in accordance with the inspection schedules and requirements in Attachment 51, Chapter 6.0, as approved/modified pursuant to Permit Conditions III.10.D.10.c.vii. and III.10.C.5.c, and take the following actions if liquid is detected in these containment

systems:

i. Remove the liquid from the containment system in accordance with procedures described in Attachments 51, Chapter 6.0, (as modified pursuant to Permit Conditions III.10.C.5.b. and III.10.C.5.c.), Permit Condition III.10.C.6.a., and Attachment 51, Chapter 7.0 (as modified pursuant to Permit Condition III.10.C.6.b.). The liquid removed from containment systems shall be managed as dangerous and/or mixed waste, except for liquids from the Non-Radioactive Dangerous Waste Container Storage Area which shall be managed as dangerous waste, unless the Permittees demonstrate, to Ecology's satisfaction, that the liquid is not a dangerous waste.

ii. Determine the source of the liquid.

iii. If the source of the liquid is determined to be a leak in a container, the Permittees must follow the procedures specified in Permit Condition III.10.D.4.b.x.

iv. The Permittees must take action to ensure the incident that caused liquid to enter the containment system will not reoccur.

v. The Permittees shall document in the WTP Unit operating record actions/procedures taken to comply with i. through iv. above in accordance with WAC 173-303-630(6).

vi. The Permittees shall notify and report releases to the environment to Ecology in accordance with Permit Condition III.10.C.6.a.

III.10.D.7 Inspections

III.10.D.7.a. The Permittees shall inspect the container storage areas and containment systems in accordance with the Inspection Schedules in Attachment 51, Chapter 6.0 of this Permit, as modified pursuant to Permit Condition III.10.C.5.c.

III.10.D.7.b. The inspection data for the container storage areas and containment systems shall be recorded, and the records shall be placed in the WTP Unit operating record in accordance with Permit Condition III.10.C.4.

III.10.D.8. Recordkeeping (WAC 173-303-380)

For the container storage areas and containment systems, the Permittees shall record and maintain in the WTP Unit operating record, all monitoring, recording, maintenance, calibration, test data, and inspection data compiled under the conditions of this Permit, in accordance with Permit Condition III.10.C.4. and III.10.C.5.

III.10.D.9. Closure

The Permittees shall close the container storage areas and containment systems in accordance with Attachment 51, Chapter 11.0 of this Permit, as approved pursuant to Permit Condition III.10.C.8.

III.10.D.10. Compliance Schedules

III.10.D.10.a. All information identified for submittal to Ecology in III.10.D.10.b. through III.10.D.10.d. of this compliance schedule must be signed in accordance with requirements in WAC 173-303-810(12).

III.10.D.10.b. The Permittees shall submit to Ecology, consistent with the schedule described in Attachment 51, Appendix 1.0, for review and approval, prior to construction of container storage area and permanent containment systems as identified in Permit Tables III.10.D.A and III.10.D.B respectively, engineering information as specified below, for incorporation into Attachment 51, Appendices 9.4, 9.5, 9.7, 9.8, 9.9, 10.4, 10.5, 10.7, 10.8, 10.9, 12.4, 12.5, 12.7, 12.8, and 12.9 of this Permit. In order to incorporate engineering information

specified below into Attachment 51, Appendices 9.4, 9.5, 9.7, 9.8, 9.9, 10.4, 10.5, 10.7, 10.8, 10.9, 12.4, 12.5, 12.7, 12.8, and 12.9, Permit Condition III.10.C.2.g. process will be followed. At a minimum, container storage area and permanent containment system drawings and specifications will show the following pursuant to WAC 173-303-806(4)(b) and WAC 173-303-630:

i. Design drawings (General Arrangement Drawings - in plan and cross sections) and specifications including references to specific building codes (e.g., UBC, ASCE) for each container storage areas' foundation and permanent containment systems. These items should show basic design parameters and dimensions, and location of the container storage areas and permanent containment systems; how permanent containment system design promotes positive drainage control (such as a locked drainage valve) to prevent release of contaminated liquids and so that uncontaminated liquids can be drained promptly for convenience of operation; capacity of the permanent containment system relative to the volume of the largest container to be stored; for permanent containment systems, how the base underlying the containers is sloped (i.e., floor slopes to sumps) or the containment system is otherwise designed and operated to drain and remove liquids resulting from leaks, spills, or other liquids, or how containers are kept from contact with standing liquids in the permanent containment system (i.e., elevated or are otherwise protected); for container storage areas without permanent containment systems, a description of how the storage area is designed or operated to drain and remove liquids or how containers are kept from contact with standing liquids;

ii. Permanent containment systems materials selection documentation (including, but not limited to, materials of construction, coatings and liner materials for concrete portions of containment systems);

iii. Sketches, drawings, or data demonstrating compliance with WAC 173-303-630(8) (location of buffer zone and containers holding ignitable or reactive waste) and WAC 173-303-630(9)(c) (location of incompatible waste), where applicable;

iv. Submit Permit Table III.10.D.B. completed to provide for all permanent containment systems, the information as specified in each column heading, consistent with information to be provided in i. through iii. above.

III.10.D.10.c. Prior to initial receipt of dangerous and/or mixed waste in the WTP Unit, the Permittees shall update and submit to Ecology, consistent with the schedule described in Attachment 51, Appendix 1.0, for review and approval, the following, as specified below, for incorporation into Attachment 51, Chapter 4.0, and Appendices 9.18, 10.18, and 12.15 of this Permit, except Permit Condition III.10.D.10.c.vii., which will be incorporated into Attachment 51, Chapter 6.0 of this Permit. In order to incorporate the following information (specified below) into Attachment 51, Appendix 9.18, 10.18, and 12.15, Permit Condition III.10.C.2.g. will be followed. All information provided under this permit condition must be consistent with information provided pursuant to Permit Conditions III.10.D.10.b., III.10.D.10.c., and III.10.D.10.d. as approved by Ecology, and will include at a minimum, the following information as required pursuant to WAC 173-303-630 and WAC 173-303-340:

i. Attachment 51, Chapter 4.0, Narrative Descriptions, updated;

ii. Descriptions of procedures for addition and removal of waste from containers;

iii. Descriptions of procedures for opening and closing of containers, including any inspections performed prior to opening;

iv. Descriptions of procedures for handling and transport of containers within the WTP Unit;

v. Description of the tracking system used to track containers throughout the WTP Unit pursuant to WAC 173-303-380. The tracking system, at a minimum, will do the following:

A. Track the location of containers within the WTP Unit;

B. Track which containers have been shipped off-facility and/or off-site, and to where they have been shipped;

C. For containers intended for transport off-site, include information in accordance with the requirements specified in WAC 173-303-190(3)(b);

D. Record the date container is placed in the container storage area;

E. Record the nature of the waste in any given container, including dangerous waste designation codes, any associated land disposal restriction treatment requirements, and the major risk(s) associated with the waste (as described in Permit Conditions III.10.D.5.a. and III.10.D.5.c.).

vi. Descriptions of procedures for container spacing, stacking, and labeling pursuant to WAC 173-303-630(3), WAC 173-303-630(5)(c), WAC 173-303-340(3), WAC 173-303-630(6);

vii. Descriptions of procedures for investigating container storage areas and investigating and repairing containment systems [WAC 173-303-320, WAC 173-303-630(6)];

viii. Descriptions of procedures for responding to damaged (e.g., severe rusting, apparent structural defects) or leaking containers [WAC 173-303-630(2)];

ix. Descriptions of operational procedures demonstrating how accumulated liquids can be analyzed and removed from permanent and portable containment systems to prevent overflow [WAC 173-303-806(4)(b)(i)(E)];

x. For portable containment systems, vendor information, design drawings, or sketches showing the following information. These items shall include as a minimum basic design parameters, dimensions, and materials of construction; how the design promotes positive drainage control (such as a locked drainage valve) to prevent release of contaminated liquids and so that uncontaminated liquids can be drained promptly for convenience of operation; how the base underlying the containers is sloped (i.e., floor slopes to sumps) or the containment system is otherwise designed and operated to drain and remove liquids resulting from leaks, spills, or other liquids, or how containers are kept from contact with standing liquids in the containment system (i.e., elevated or are otherwise protected); and capacity of the containment system relative to the volume of the largest container to be stored;

xi. Where ignitable and reactive waste are stored or otherwise managed in containers, a description of the procedures used to ensure compliance with WAC 173-303-630(8)(a) and (b);

xii. Where incompatible waste are stored or otherwise managed in containers, a description of the procedures used to ensure compliance with WAC 173-303-630(9)(a) and (b), and 173-303-395(1)(b) and (c);

xiii. Submit Permit Table III.10.D.C completed to provide for all portable containment systems, the information as specified in each column heading, consistent with information to be provided in i. through xii. above;

xiv. Test procedures and results or other documentation or information to show that the waste do not contain free liquids, as applicable.

III.10.D.10.d. Prior to initial receipt of dangerous and/or mixed waste in the WTP Unit, the Permittees shall submit to Ecology, consistent with the schedule described in Attachment 51, Appendix 1.0, for review and approval, completed Permit Tables III.10.D.A, III.10.D.B, and III.10.D.C, for incorporation into Attachment 51, Chapter 4.0, and Appendices 9.18, 10.18, and 12.15 of this Permit. In order to incorporate the information into Attachment 51, Chapter 4.0, and Appendices 9.18, 10.18, and 12.15 of this Permit, Permit Condition III.10.C.2.g. process will be followed.

Table III.10.D.A – Container Storage Areas Description

Dangerous and Mixed Waste Container Storage Areas	Maximum Capacity Gallons (Solids) (ft^3)[d]	Maximum Capacity (Liquid[c])
LAW Vitrification Plant		
ILAW Buffer Container Storage Area[a]	89,099 gal. (11,939 ft^3)	RESERVED
ILAW Container Storage Area[a]	889,448 gal. (119,186 ft^3)	RESERVED
LAW Container Storage Area	80,549 gal. (10,794 ft^3)	RESERVED
HLW Vitrification Plant		
IHLW Canister Storage Area[a]	245,504 gal. (32,898 ft^3)	RESERVED
HLW Container Storage Area No. 1	266,654 gal. (35,732 ft^3)	RESERVED
HLW Container Storage Area No. 2	71,999 gal. (9,648 ft^3)	RESERVED
HLW Container Storage Area No. 3	43,392 gal. (5,815 ft^3)	RESERVED
Other Areas		
Central Waste Storage Facility	617,137 gal. (82,696 ft^3)	RESERVED
Non-Radioactive Dangerous Waste Container Storage Area[b]	48,214 gal. (6,461 ft^3)	RESERVED
HLW Melter Out-Of-Service Storage Area	202,498 gal. (27,135 ft^3)	RESERVED
LAW Melter Out-Of-Service Storage Area	216,962 gal. (29,073 ft^3)	RESERVED
Containment Building Container Storage	RESERVED	RESERVED

[a] Capacity is for immobilized glass waste storage.
[b] Capacity is for dangerous and/or mixed waste storage.
[c] All material within the containment systems will be considered waste for the purposes of calculating free volume, where free volume is the amount of space available in containment systems (i.e., free volume = total capacity of containment systems [which includes total capacity of portable containment systems] minus volume occupied by equipment and containers within containment systems).
[d] Gallons converted to cubic feet using a conversion factor of 1 gallon (liquid) x 0.134 = $1ft^3$ (rounded to the nearest whole number).
[e] Location and capacities of containers stored within portable containment systems specified on Table III.10.D.C are limited to the dangerous and mixed waste container storage areas and capacities specified above.

Table III.10.D.B – Container Storage Area Permanent Containment Systems

Container Storage Areas	Permanent Containment System Description – Drawing #s	Permanent Containment System Sump/Floor Drain ID#	Permanent Containment System Dimensions (ft) & Materials of Construction	Permanent Containment System Capacity (gal) (relative to 10% of the volume of all containers within the container storage area, or 100% of the volume of the largest container, whichever is greater).
Central Waste Storage Facility	RESERVED	RESERVED	RESERVED	RESERVED

Table III.10.D.C – Container Storage Area Portable Containment Systems[a]

Portable Containment System Description – Specifications and Vendor Information	Portable Containment System Container Storage Area(s) Location(s)	Portable Containment System Dimensions (ft) & Materials of Construction	Portable Containment System Capacity (gal) (relative to 10% of the volume of all containers managed within the portable containment system, or 100% of the volume of the largest container, whichever is greater).
RESERVED	RESERVED	RESERVED	RESERVED

[a] Location and capacities of containers stored within portable containment systems specified on this Permit Table are limited to the dangerous and mixed waste container storage areas and capacities specified in Permit Table III.10.D.A.

III.10.E TANK SYSTEMS

III.10.E.1 Approved Waste and Storage Limits

III.10.E.1.a. The Permittees may store in tank systems all dangerous and/or mixed waste listed in the Part A Forms, Attachment 51, Chapter 1.0 of this Permit and in accordance with the Waste Analysis Plan, Attachment 51, Chapter 3.0 as approved pursuant to Permit Condition III.10.C.3. of this Permit. Total tank system dangerous and/or mixed waste storage at the Facility shall not exceed 4,735,000 gallons pursuant to requirements in Permit Condition III.10.E.1.

III.10.E.1.b. The Permittees may store and manage dangerous and/or mixed waste only in approved tank systems listed in Permit Tables III.10.E.A through D, I, K, M, and O, as approved/modified pursuant to Permit Condition III.10.E.9., in accordance with Permit Section III.10.E of this Permit, and in accordance with Attachment 51, Chapters 1.0 and 4.0, and Attachment 51, Appendices 8.1 through 8.15, 9.1 through 9.14, 9.18, 10.1 through 10.14, 10.18, and 11.1 through 11.15 of this Permit, as approved pursuant to Permit Conditions III.10.E.9.b through e. The Permittees shall limit the total volume of waste to quantities specified for the individual units listed in Permit Tables III.10.E.A through D, I, K, M, and O.

III.10.E.1.c. The Permittees shall manage ignitable and reactive, and incompatible waste in accordance with WAC 173-303-395(1). Any tank system specified in Permit Tables III.10.E.A through D and III.10.E, I, K, M, and O as approved/modified pursuant to Permit Condition III.10.E.9., in which ignitable, reactive, or incompatible waste are managed shall meet the requirements specified in WAC 173-303-640(9) and (10).

III.10.E.1.d. The Permittees shall ensure all certifications required by specialists (e.g., independent, qualified, registered professional engineer; independent corrosion expert; independent, qualified installation inspector; etc.) use the following statement or equivalent pursuant to Permit Condition III.10.C.10 of this Permit:

"I, (Insert Name) have (choose one or more of the following: overseen, supervised, reviewed, and/or certified) a portion of the design or installation of a new tank system or component located at (address), and owned/operated by (name(s)). My duties were: (e.g., installation inspector, testing for tightness, etc.), for the following tank system components (e.g., the tank, venting piping, etc.), as required by the Dangerous Waste Regulations, namely, WAC 173-303-640(3) (applicable paragraphs (i.e., (a) through (g)).

"I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment."

III.10.E.1.e. In all future permit submittals, the Permittees shall include tank names with the tank designation (e.g., Process Condensate Vessels located in the RLD System are designated V45028A and V45028B, respectively).

III.10.E.2 Tank System Design and Construction

III.10.E.2.a. The Permittees shall construct the tank systems identified in Permit Tables III.10.E.A through D, I, K, M, and O, as approved/modified pursuant to Permit Condition III.10.E.9., as specified in Attachment 51, Appendices 8.1 through 8.14, 9.1 through 9.14, 10.1 through 10.14, and 11.1 through 11.14 of this Permit, as approved pursuant to Permit Conditions III.10.E.9.b., III.10.E.9.c., and III.10.E.9.d.

III.10.E.2.b. The Permittees shall construct all secondary containment systems identified in Permit Tables III.10.E.A through D, ~~J, L, N,~~ and I through P, as approved/modified pursuant to Permit Condition III.10.E.9., as specified in Attachment 51, Appendices 8.2, 8.4 through 8.15, 9.2, 9.4 through 9.14, 9.18, 10.2, 10.4 through 10.14, 10.18 and 11.2, 11.4 through 11.15**,** 11.15 of this Permit, as approved pursuant to Permit Conditions III.10.E.9.b., III.10.E.9.c., and III.10.E.9.d.

III.10.E.2.c. Modifications to approved design, plans, and specifications in Attachment 51 of this Permit for the WTP Unit Tank Systems shall be allowed only in accordance with Permit Conditions III.10.C.2.e. and f., or III.10.C.2.g., III.10.C.9.d, e., and h.

III.10.E.3 Tank System Installation and Certification

III.10.E.3.a. The Permittees must ensure that proper handling procedures are adhered to in order to prevent damage to the system during installation. Prior to covering, enclosing, or placing a new tank system or component in use, an independent, qualified, installation inspector or an independent, qualified, registered professional engineer, either of whom is trained and experienced in the proper installation of tank systems or components, must inspect the system for the presence of any of the following items:

i. Weld breaks;

ii. Punctures;

iii. Scrapes of protective coatings;

iv. Cracks;

v. Corrosion;

vi. Other structural damage or inadequate construction/installation.

All discrepancies must be remedied before the tank system is covered, enclosed, or placed in use [WAC 173-303-640(3)(c)].

III.10.E.3.b. For tank systems or components that are placed underground and that are back-filled, the Permittees must provide a backfill material that is a non-corrosive, porous, homogeneous substance. The backfill must be installed so that it is placed completely around the tank and compacted to ensure that the tank and piping are fully and uniformly supported [WAC 173-303-640(3)(d)].

III.10.E.3.c. The Permittees must test for tightness all new tanks and ancillary equipment prior to these components being covered, enclosed, or placed into use. If a tank system is found not to be tight, all repairs necessary to remedy the leak(s) in the system must be performed prior to the tank system being covered, enclosed, or placed in use [WAC 173-303-640(3)(e)].

III.10.E.3.d. The Permittees must ensure ancillary equipment is supported and protected against physical damage and excessive stress due to settlement, vibration, expansion, or contraction [WAC 173-303-640(3)(f)].

III.10.E.3.e. The Permittees must provide the type and degree of corrosion protection recommended by an independent corrosion expert, based on the information provided in Attachment 51, Appendices 8.9, 8.11, 9.9, 9.11, 10.9, 10.11, 11.9, and 11.11 of this Permit, as approved pursuant to Permit Conditions III.10.E.9.b.i., III.10.E.9.b.iv., III.10.E.9.b.v., III.10.E.9.c.i., III.10.E.9.c.iv., III.10.E.9.c.v., III.10.E.9.d.i., III.10.E.9.d.iv., and III.10.E.9.d.v. or other corrosion protection if the Ecology believes other corrosion protection is necessary to ensure the integrity of the tank system during use of the tank system. The installation of a corrosion protection system that is field fabricated must be supervised by an independent corrosion expert to ensure proper installation [WAC 173-303-640(3)(g)].

III.10.E.3.f. Prior to initial receipt of dangerous and/or mixed waste in the WTP Unit, the Permittees shall obtain, and keep on file in the WTP Unit operating record, written statements by those persons required to certify the design of the tank system and supervise the installation of the tank system in accordance with the requirements of WAC 173-303-640(3)(b), (c), (d), (e), (f), and (g), attesting that each tank system and corresponding containment system listed in Permit Tables III.10.E.A through D and III.10.E.I through P, as approved/modified pursuant to Permit Condition III.10.E.9., were properly designed and installed, and that repairs, pursuant to WAC 173-303-640(3)(c) and (e) were performed [WAC 173-303-640(3)(a) WAC 173-303-640(3)(h)].

III.10.E.3.g. The independent tank system installation inspection and subsequent written statements shall be certified pursuant to Permit Condition III.10.E.1.d., comply with all requirements of WAC 173-303-640(3)(h) and shall consider, but not be limited to, the following tank system installation documentation:

i. Field installation report with date of installation;

ii. Approved welding procedures;

iii. Welder qualifications and certification;

iv. Hydro-test reports, as applicable, in accordance with the American Society of Mechanical Engineers Boiler and Pressure Vessel Code, Section VIII, Division 1, American Petroleum Institute (API) Standard 620, or Standard 650 as applicable;

v. Tester credentials;

vi. Field inspector credentials;

vii. Field inspector reports;

viii. Field waiver reports; and

ix. Non-compliance reports and corrective action (including field waiver reports) and repair reports.

III.10.E.4 Integrity Assessments

III.10.E.4.a. The Permittees shall ensure periodic integrity assessments are conducted on the WTP Unit Tank Systems listed in Permit Tables III.10.E.A through D, I, K, M, and O, as approved/modified pursuant to Permit Condition III.10.E.9., over the term of this Permit as specified in WAC 173-303-640(3)(b), following the description of the integrity assessment program and schedule in Attachment 51, Chapter 6.0 of this Permit, as approved pursuant to Permit Conditions III.10.E.9.e.i. and III.10.C.5.c. Results of the integrity assessments shall be included in the WTP Unit operating record until ten (10) years after post-closure, or corrective action is complete and certified, whichever is later.

III.10.E.4.b. The Permittees shall address problems detected during the tank integrity assessments specified in Permit Condition III.10.E.4.a. following the integrity assessment program in Attachment 51, Chapter 6.0 of this Permit, as approved pursuant to Permit Conditions III.10.E.9.e.i. and III.10.C.5.c.

III.10.E.4.c. The Permittees must immediately and safely remove from service any Tank System or secondary containment system which through an integrity assessment is found to be "unfit for use" as defined in WAC 173-303-040, following Permit Conditions III.10.E.5.i.i through iv., vi., and vii. The affected tank system or secondary containment system must be either repaired or closed in accordance with Permit Condition III.10.E.5.i.v. [WAC 173-303-640(7)(e) and (f), WAC 173-303-640(8)].

III.10.E.5 Tank Management Practices

III.10.E.5.a. No dangerous and/or mixed waste shall be managed in the WTP Unit Tank System unless the operating conditions, specified under Permit Condition III.10.E.5 are complied with.

III.10.E.5.b. The Permittees shall install and test all process and leak detection system monitoring/instrumentation, as specified in Permit Tables III.10.E.E through H, as approved/modified pursuant to Permit Condition III.10.E.9., in accordance with Attachment 51, Appendices 8.1, 8.2 ~~8.10,~~ 8.14, 9.1, 9.2, 9.14, 10.1, 10.2, 10.14, 11.1, 11.2, and 11.14 of this Permit, as approved pursuant to Permit Conditions III.10.E.9.e.ix. and III.10.E.9.d.x.

III.10.E.5.c. The Permittees shall not place dangerous and/or mixed waste, treatment reagents, or other materials in the WTP Unit Tank System if these substances could cause the tank system to rupture, leak, corrode, or otherwise fail [WAC 173-303-640(5)(a)].

III.10.E.5.d. The Permittees shall operate the WTP Unit Tank System to prevent spills and overflows using the description of controls and practices as required under WAC 173-303-640(5)(b) described in Permit Condition III.10.C.5, and Attachment 51, Appendices 8.15, 9.18, 10.18, and 11.15 of this Permit, as approved pursuant to Permit Condition III.10.E.9.e.iv. [WAC 173-303-640(5)(b), WAC 173-303-806(4)(c)(ix)].

III.10.E.5.e. For routinely non-accessible WTP Unit Tank Systems, as specified in Attachment 51, Chapter 4.0 of this Permit, as updated pursuant to Permit Condition III.10.E.9.e.vi., the Permittees shall mark all routinely non-accessible tank system access points with labels or signs to identify the waste contained in the tanks. The label, or sign, must be legible at a distance of at least fifty (50) feet and must bear a legend that identifies the waste in a manner

which adequately warns employees, emergency response personnel, and the public of the major risk(s) associated with the waste being stored or treated in the tank system(s). For the purposes of this Permit condition, "routinely non-accessible" means personnel are unable to enter these areas while waste is being managed in them [WAC 173-303-640(5)(d)].

III.10.E.5.f. For all tank systems not addressed in Permit Condition III.10.E.5.e., the Permittees shall mark all these tank systems holding dangerous and/or mixed waste with labels or signs to identify the waste contained in the tank. The labels, or sign, must be legible at a distance of at least fifty (50) feet, and must bear a legend that identifies the waste in a manner which adequately warns employees, emergency response personnel, and the public of the major risk(s) associated with the waste being stored or treated in the tank system(s) [WAC 173-303-640(5)(d)].

III.10.E.5.g. The Permittees shall ensure that the secondary containment systems for the WTP Unit Tank Systems listed in Permit Tables III.10.E.A through D, I, K, M, and O, as approved/modified pursuant to Permit Condition III.10.E.9., are free of cracks or gaps to prevent any migration of dangerous and/or mixed waste or accumulated liquid out of the system to the soil, ground water, or surface water at any time that waste is in the tank system. Any indication that a crack or gap may exist in the containment systems shall be investigated and repaired in accordance with Attachment 51, Appendices 8.15, 9.18, 10.18, and 11.15 of this Permit, as approved pursuant to Permit Condition III.10.E.9.e.v [WAC 173-303-320, WAC 173-303-640(4)(b)(i), WAC 173-303-640(4)(e)(i)(C), WAC 173-303-640(6), and WAC 173-303-806(4)(c)(vii)].

III.10.E.5.h. An impermeable coating, as specified in Attachment 51, Appendices 8.4, 8.5, 8.7, 8.9, 8.11, 8.12, 9.4, 9.5, 9.7, 9.9, 9.11, 9.12, 10.4, 10.5, 10.7, 10.9, 10.11, 10.12, 11.4, 11.5, 11.7, 11.9, 11.11, and 11.12 of this Permit, as approved pursuant to Permit Condition III.10.E.9.b.v., shall be maintained for all concrete containment systems and concrete portions of containment systems for each WTP Unit Tank System listed in Permit Tables III.10.E.A through D and I through P, as approved/modified pursuant to Permit Condition III.10.E.9. Concrete containment systems that do not have a liner and have construction joints, must meet the requirements of WAC 173-303-640(4)(e)(ii)(C) and -806(4)(c)(vii). The coating shall prevent migration of any dangerous and/or mixed waste into the concrete. All coatings shall meet the following performance standards:

i. The coating must seal the containment surface such that no cracks, seams, or other avenues through which liquid could migrate are present;

ii. The coating must be of adequate thickness and strength to withstand the normal operation of equipment and personnel within the given area such that degradation or physical damage to the coating or lining can be identified and remedied before dangerous and/or mixed waste could migrate from the system; and

iii. The coating must be compatible with the dangerous and/or mixed waste, treatment reagents, or other materials managed in the containment system [WAC 173-303-640(4)(e)(ii)(D), WAC 173-303-806(4)(c)(vii)].

III.10.E.5.i. The Permittees shall inspect all secondary containment systems for WTP Unit Tank Systems listed in Permit Tables III.10.E.A through D and I through P, as approved/modified pursuant to Permit Condition III.10.E.9., in accordance with the Inspection Schedule specified in Attachment 51, Chapter 6.0 of this Permit, as approved pursuant to Permit Conditions III.10.E.9.e.v. and III.10.C.5., and take the following actions if a leak or spill of dangerous and/or mixed waste is detected in these containment systems [WAC 173-303-320, WAC 173-303-640(5)(c), WAC 173-303-640(6), WAC 173-303-806(4)(a)(v)]:

i. Immediately and safely stop the flow of dangerous and/or mixed waste into the tank system or secondary containment system, in accordance with procedures based on all applicable safety analysis documentation;

ii. Determine the source of the dangerous and/or mixed waste;

iii. Remove the waste from the secondary containment area pursuant to WAC 173-303-640(7)(b). The waste removed from containment areas of WTP Unit Tank Systems shall be managed as dangerous and/or mixed waste;

iv. If the cause of the release was a spill that has not damaged the integrity of the tank system, the Permittees may return the tank system to service pursuant to WAC 173-303-640(7)(e)(ii). In such a case, the Permittees shall take action to ensure the incident that caused liquid to enter the containment systems of these tank systems will not reoccur [WAC 173-303-320(3);

v. If the source of the dangerous waste and/or mixed waste is determined to be a leak from a primary WTP Unit Tank System, or the system is unfit for use as determined through an integrity assessment or other inspection, the Permittees must comply with the requirements of WAC 173-303-640(7) and take the following actions [WAC 173-303-640(5)(c)]:

A. Close the tank system according to procedures in WAC 173-303-640(7)(e)(i), and Attachment 51, Chapter 11.0 of this Permit, as approved pursuant to Permit Condition III.10.C.8; or

B. Repair and re-certify (in accordance with WAC 173-303-810(13)(a) as modified pursuant to Permit Condition III.10.E.1.d.) the tank system in accordance with Attachment 51, Appendices 8.15, 9.18, 10.18, and 11.15 of this Permit, as approved pursuant to Permit Condition III.10.E.9.e.v. before the tank system is placed back into service [WAC 173-303-640(7)(e) and (f), and WAC 173-303-806(4)(c)(vii)];

vi. The Permittees shall document in the operating record actions/procedures taken to comply with i. through v. above in accordance with WAC 173-303-640(6)(d);

vii. The Permittees shall notify and report releases to the environment to Ecology in accordance with WAC 173-303-640(7)(d).

III.10.E.5.j. If liquids (e.g., dangerous and/or mixed waste leaks and spills, precipitation, fire water liquids from damaged or broken pipes) can not be removed from the secondary containment system within twenty-four (24) hours, Ecology will be verbally notified within twenty-four (24) hours of discovery. The notification shall provide the information in A, B, and C listed below. The Permittees shall provide Ecology with a written demonstration within seven (7) business days, identifying at a minimum [WAC 173-303-640(4)(c)(iv), WAC 173-303-640(7)(b)(ii), WAC 173-303-806(4)(c)(vii)]:

A. Reasons for delayed removal;

B. Measures implemented to ensure continued protection of human health and the environment;

C. Current actions being taken to remove liquids from secondary containment.

III.10.E.5.k. The Permittees shall operate the WTP Unit Tank System in accordance with Attachment 51, Chapter 4.0 as updated pursuant to Permit Condition III.10.E.9.e.vi. and Appendices 8.15, 9.18, 10.18, and 11.15 of this Permit, as approved pursuant to Permit Condition III.10.E.9.e., and the following:

i. The Permittees shall operate the WTP Unit Tank System in order to maintain the systems and process parameters listed in Permit Tables III.10.E.E through H, as approved/modified pursuant to Permit Condition III.10.E.9., within the operating trips and operating ranges specified in Permit Tables III.10.E.E through H, and consistent with assumptions and basis which are reflected in Attachment 51, Appendix, 6.3.1. as approved pursuant to Permit Condition III.10.C.11.b. [WAC 173-303-815(2)(b)(ii) and WAC 173-303-640(5)(b)]. For the purposes of this permit condition, Attachment 51, Appendix 6.3.1 shall be superceded by Appendix 6.4.1 upon its approval pursuant to either Permit Conditions III.10.C.11.c. or III.10.C.11.d.;

ii. The Permittees shall calibrate/function test the instruments listed on Permit Tables III.10.E.E through H in accordance with Attachment 51, Appendices 8.15, 9.18, 10.18, and 11.15 of this Permit, as approved pursuant to Permit Condition III.10.E.9.e.xi.

III.10.E.5.l. Tank systems that have the potential for formation and accumulation of hydrogen gases must be operated to maintain hydrogen levels below the lower explosive limit [WAC 173-303-815(2)(b)(ii)].

III.10.E.5.m. For each tank system holding dangerous waste which are acutely or chronically toxic by inhalation, operate the system to prevent escape of vapors, fumes or other emissions into the air [WAC 173-303-640(5)(e), WAC 173-303-806(4)(c)(xii)].

III.10.E.6 Inspections [WAC 173-303-640(6)]

III.10.E.6.a. The Permittees shall inspect the WTP Unit Tank Systems in accordance with the Inspection Schedules in Attachment 51, Chapter 6.0 of this Permit, as modified pursuant to Permit Condition III.10.C.5.c.

III.10.E.6.b. The inspection data for the WTP Unit Tank Systems shall be recorded, and the records shall be placed in the WTP Unit operating record, in accordance with Permit Condition III.10.C.4.

III.10.E.7 Recordkeeping (WAC 173-303-380)

For the WTP Unit Tank Systems, the Permittees shall record and maintain in the WTP Unit operating record, all monitoring, calibration, recording, maintenance, test data, and inspection data compiled under the conditions of this Permit, in accordance with Permit Conditions III.10.C.4. and III.10.C.5.

III.10.E.8 Closure

The Permittees shall close the WTP Unit Tank Systems in accordance with Attachment 51, Chapter 11.0 of this Permit, as approved pursuant to Permit Condition III.10.C.8.

III.10.E.9 Compliance Schedule

III.10.E.9.a. All information identified for submittal to Ecology in b. through e. of this compliance schedule must be signed and certified in accordance with requirements in WAC 173-303-810(12), as modified in accordance with Permit Condition III.10.E.1.d. [WAC 173-303-806(4)].

III.10.E.9.b. The Permittees shall submit to Ecology, pursuant to Permit Condition III.10.C.9.f., prior to construction of each secondary containment and leak detection system for the WTP Unit Tank System (per level, per WTP Unit building and outside the WTP Unit buildings) as identified in Permit Tables III.10.E.A through D, J, L, N, and P, engineering information as specified below, for incorporation into Attachment 51, Appendices 8.4, 8.5, 8.7, 8.8, 8.9, 8.11, 8.12, 9.4, 9.5, 9.7, 9.8, 9.9, 9.11, 9.12, 10.4, 10.5, 10.7, 10.8, 10.9, 10.11, 11.4, 11.5, 11.7, 11.8, 11.9, and 11.11 of this Permit. At a minimum, engineering information specified below will show the following as required pursuant to WAC 173-303-640 (the information

specified below will include dimensioned engineering drawings and information on sumps and floor drains):

i. IQRPE Reports (specific to foundation, secondary containment, and leak detection system) shall include review of design drawings, calculations, and other information on which the certification report is based and shall include as applicable, but not limited to, review of such information described below. Information (drawings, specifications, etc.) already included in Attachment 51, Appendices 8.0 through 11.0 of this Permit, may be included in the report by reference and should include drawing and document numbers. IQRPE Reports shall be consistent with the information separately provided in ii. through ix. below. The IQRPE Report(s) (specific to foundation, secondary containment and leak detection system) for the LAW and HLW buildings (-21 foot elevation only) shall be submitted with the first IQRPE Report for tanks, identified in Permit Condition III.10.E.9.c.i. [WAC 173-303-640(3)(a), WAC 173-303-806(4)(c)(i)];

ii. Design drawings (General Arrangement Drawings in plan and cross sections) and specifications for the foundation, secondary containment, including, liner installation details, and leak detection methodology [Note: leak detection systems for areas where daily, direct, or remote visual inspection is not feasible, shall be continuous in accordance with WAC 173-303-640(4)(e)(iii)(C)]. These items should show the dimensions, volume calculations, and location of the secondary containment system, and should include items such as floor/pipe slopes to sumps, tanks, floor drains [WAC 173-303-640(4)(b) through (f), WAC 173-303-640(3)(a), WAC 173-303-806(4)(c)(i)];

iii. The Permittees shall provide the design criteria (references to codes and standards, load definitions, and load combinations, materials of construction, and analysis/design methodology) and typical design details for the support of the secondary containment system. This information shall demonstrate the foundation will be capable of providing support to the secondary containment system, resistance to pressure gradients above and below the system, and capable of preventing failure due to settlement, compression, or uplift [WAC 173-303-640(4)(c)(ii), WAC 173-303-806(4)(c)(vii)];

iv. A description of materials and equipment used to provide corrosion protection for external metal components in contact with soil, including factors affecting the potential for corrosion as required under WAC 173-303-640(3)(a)(iii)(B) [WAC 173-303-806(4)(c)(v)];

v. Secondary containment/foundation and leak detection system materials selection documentation (including, but not limited to, concrete coatings and water stops, and liner materials as applicable) [WAC 173-303-806(4)(c)(i)];

vi. Detailed description of how the secondary containment for each tank system will be installed in compliance with WAC 173-303-640(3)(c) [WAC 173-303-806(4)(c)(vi)];

vii. Submit Permit Tables III.10.E.J, L, N, and P, completed to provide for all secondary containment sumps and floor drains, the information as specified in each column heading, consistent with information to be provided in i. through vi. above;

viii. Documentation that secondary containment and leak detection systems will not accumulate hydrogen gas levels above the lower explosive limit for incorporation into the Administrative Record [WAC 173-303-340].

ix. A detailed description of how tank system design provides access for conducting future tank integrity assessments [WAC 173-303-640(3)(b), WAC 173-303-806(4)(c)(vi)];

III.10.E.9.c. The Permittees shall submit to Ecology, pursuant to Permit Condition III.10.C.9.f., prior to installation of each tank as identified in Permit Tables III.10.E.A through D, and I, K, M, and O engineering information as specified below, for incorporation into Attachment 51, Appendices 8.1 through 8.9, 8.11 through 8.14, 9.1 through 9.9, 9.11 through 9.14, 10.1 through 10.9, 10.11 through 10.14, 11.1 through 11.9, and 11.11 through 11.14 of this Permit. Tanks shall include primary sumps. At a minimum, engineering information specified below will show the following as required pursuant to WAC 173-303-640 (the information specified below will include dimensioned engineering drawings):

i. IQRPE Reports (specific to tanks) shall include review of design drawings, calculations, and other information on which the certification report is based and shall include as applicable, but not limited to, review of such information described below. Information (drawings, specifications, etc.) already included in Attachment 51, Appendices 8.0 through 11.0 of this Permit, may be included in the report by reference and should include drawing and document numbers. The IQRPE Reports shall be consistent with the information separately provided in ii. through xiv. below and the IQRPE Report specified in Permit Condition III.10.E.9.b.i. [WAC 173-303-640(3)(a), WAC 173-303-806(4)(c)(i)];

ii. Design drawings (General Arrangement Drawings in plan and cross sections, Process Flow Diagrams, Piping and Instrumentation Diagrams [including pressure control systems], Mechanical Drawings) and specifications, and other information, specific to tanks (to show location and physical attributes of each tank) [WAC 173-303-640(3)(a), WAC 173-303-806(4)(c)(i) through (iv)];

iii. The Permittees shall provide the design criteria (references to codes and standards, load definitions, and load combinations, materials of construction, and analysis/design methodology) and typical design details for the support of the tank(s). Structural support calculations specific to off-specification, non-standard, and field fabricated tanks shall be submitted for incorporation into the Administrative Record [WAC 173-303-640(3)(a), WAC 173-303-806(4)(c)(i)];

iv. A description of materials and equipment used to provide corrosion protection for external metal components in contact with water, including factors affecting the potential for corrosion as required under WAC 173-303-640(3)(a)(iii)(B) [WAC 173-303-806(4)(c)(v)];

v. Tank materials selection documentation (e.g., physical and chemical tolerances) [WAC 173-303-640(3)(a), WAC 173-303-806(4)(c)(i)];

vi. Tank vendor information (including, but not limited to required performance warranties, as available), consistent with information submitted under ii. above, shall be submitted for incorporation into the Administrative Record [WAC 173-303-640~~(3)(a)~~, and WAC 173-303-806(4)(c) ~~WAC 173-303-806(4)(i)(i)(A) through (B), and WAC 173-303-806(4)(i)(v)~~];

vii. System Descriptions (process) related to tanks shall be submitted for incorporation into the Administrative Record;

viii. Mass balance for each projected operating condition, including assumptions and formulas used to complete the mass balance, so that they can be independently verified, and shall be submitted for incorporation into the Administrative Record;

ix. A detailed description of how the tanks will be installed in compliance with WAC 173-303-640(3)(c), (d), and (e) [WAC 173-303-806(4)(c)(vi)];

x. Submit Permit Tables III.10.E.I, K, M, and O, completed to provide for all primary containment sumps and floor drains, the information as specified in each column heading, consistent with information to be provided in i. through ix.;

xi. Documentation that tanks are designed to prevent the accumulation of hydrogen gas levels above the lower explosive limit for incorporation into the Administrative Record [WAC 173-303-340];

xii. Documentation that tanks are designed to prevent escape of vapors and emissions of acutely or chronically toxic (upon inhalation) EHW limit for incorporation into the Administrative Record [WAC 173-303-640(5)(e), WAC 173-303-806(4)(c)(xii)];

III.10.E.9.d. The Permittees shall submit to Ecology, pursuant to Permit Condition III.10.C.9.f., prior to installation of ancillary equipment for each tank system, as identified in Permit Tables III.10.E.A, through D, and I through P, not addressed in Permit Condition III.10.E.9.c., engineering information as specified below, for incorporation into Attachment 51, Appendices 8.1 through 8.9, 8.11 through 8.14, 9.1 through 9.9, 9.11 through 9.14, 10.1 through 10.9, 10.11 through 10.14, 11.1 through 11.9, and 11.11 through 11.14 of this Permit. At a minimum, engineering information specified below will show the following as required pursuant to WAC 173-303-640 (the information specified below will include dimensioned engineering drawings):

i. IQRPE Reports (specific to ancillary equipment) shall include a review of design drawings, calculations, and other information as applicable, on which the certification report is based. The reports shall include, but not be limited to, review of such information described below. Information (drawings, specifications, etc.) already included in Attachment 51, Appendix 8.0 through 11.0 of this Permit, may be included in the report by reference and should include drawing and document numbers. The IQRPE Reports shall be consistent with the information provided separately in ii. through ~~xii.~~ xiii. below and the IQRPE Reports specified in Permit Conditions III.10.E.9.b and III.10.E.9.c. [WAC 173-303-640(3)(a), WAC 173-303-806(4)(c)(i)];

ii. Design drawings (Process Flow Diagrams, Piping and Instrumentation Diagrams [including pressure control systems], etc.) specifications (including required performance warranties), and other information specific to ancillary equipment (these drawings should include all equipment such as pipe, valves, fittings, pumps, instruments, etc.) [WAC 173-303-640(3)(a), WAC 173-303-806(4)(c)(i), (iii), (iv)];

iii. The Permittees shall provide the design criteria (references to codes and standards, load definitions, and load combinations, materials of construction, and analysis/design methodology) and typical design details for the support of the ancillary equipment [WAC 173-303-640(3)(a), WAC 173-303-640(3)(f), WAC 173-303-806(4)(c)(i)];

iv. A description of materials and equipment used to provide corrosion protection for external metal components in contact with soil and water, including factors affecting the potential for corrosion as required under WAC 173-303-640(3)(a)(iii)(B) [WAC 173-303-806(4)(c)(v)];

v. Materials selection documentation for ancillary equipment (e.g., physical and chemical tolerances) [WAC 173-303-640(3)(a), WAC 173-303-806(4)(c)(i)];

vi. Vendor information, consistent with information submitted under ii. above, shall be submitted for incorporation into the Administrative Record [WAC 173-303-640~~(3)(a)~~, and WAC 173-303-806(4)(c)~~WAC 173-303-806(4)(i)(i)(A) through (B), and WAC 173-303-806(4)(i)(v)~~];

vii. Tank, ~~instrument and~~ ancillary equipment, and leak detection system instrument control logic narrative description (e.g., software functional specifications, descriptions of fail-safe conditions, etc.);

viii. System Descriptions (process) related to ancillary equipment and system descriptions related to leak detection systems, (including instrument control logic and narrative descriptions), for incorporation into the Administrative Record;

ix. A detailed description of how the ancillary equipment will be installed and tested [WAC 173-303-640(3)(c) through (e), WAC 173-303-640(4)(b) and (c), and WAC 173-303-806(4)(c)(vi)];

x. For process monitoring, ~~and~~ control, and leak detection system instrumentation for the WTP Unit Tank System as identified in Permit Tables III.10.E.E through H, a detailed description of how the process monitoring, ~~and~~ control, and leak detection system instrumentation will be installed and tested [WAC 173-303-640(3)(c) through (e), WAC 173-303-640(4)(b) and (c), WAC 173-303-806(4)(c)(vi)];

xi. Mass balance for projected normal operating condition used in developing the process and instrumentation diagrams, including assumptions and formulas used to complete the mass balance, so that they can be independently verified, for incorporation into the Administrative Record;

xii. Documentation that ancillary equipment is designed to prevent the accumulation of hydrogen gas levels above the lower explosive limit for incorporation into the Administrative Record [WAC 173-303-340].

xiii. Leak detection system documentation (e.g. vendor information, etc.) consistent with information submitted under Permit Condition III.10.E.9.c.ii. and Permit Conditions III.10.E.9.d.ii., vii., viii. and x. above, shall be submitted for incorporation into the Administrative Record.

III.10.E.9.e. Prior to initial receipt of dangerous and/or mixed waste in the WTP Unit, the Permittees shall submit to Ecology, pursuant to Permit Condition III.10.C.9.f., the following as specified below for incorporation into Attachment 51, Appendices 8.15, 9.18, 10.18, 11.15 of this Permit, except Permit Condition III.10.E.9.e.v., which will be incorporated into Attachment 51, Chapter 6.0 of this Permit. All information provided under this permit condition must be consistent with information provided pursuant to Permit Conditions III.10.E.9.b., c., d., and e., III.10.C.3.e., and III.10.C.11.b., as approved by Ecology.

i. Integrity assessment program and schedule for all WTP Unit tanks shall address the conducting of periodic integrity assessments on all WTP Unit tanks over the life of the tank, in accordance with III.10.E.9.b.ix. and WAC 173-303-640(3)(b), and descriptions of procedures for addressing problems detected during integrity assessments. The schedule must be based on past integrity assessments, age of the tank system, materials of construction, characteristics of the waste, and any other relevant factors [WAC 173-303-640(3)(b), WAC 173-303-806(4)(c)(vi)];

ii. Detailed plans and descriptions, demonstrating the leak detection system is operated so that it will detect the failure of either the primary or secondary containment structure or the presence of any release of dangerous and/or mixed waste, or accumulated liquid in the secondary containment system within twenty-four (24) hours. Detection of a leak of at least 0.1 gallons per hour within twenty-four (24) hours is defined as being able to

detect a leak within twenty-four (24) hours. Any exceptions to this criteria must be approved by Ecology [WAC 173-303-640(4)(c)(iii), WAC 173-303-806(4)(c)(vii)];

iii. Detailed operational plans and descriptions, demonstrating that spilled or leaked waste and accumulated liquids can be removed from the secondary containment system within twenty-four (24) hours [WAC 173-303-806(4)(c)(vii)];

iv. Descriptions of operational procedures demonstrating appropriate controls and practices are in place to prevent spills and overflows from tanks or containment systems in compliance with WAC 173-303-640(5)(b)(i) through (iii) [WAC 173-303-640(5)(b), WAC 173-303-806(4)(c)(ix)];

v. Description of procedures for investigation and repair of tank systems [WAC 173-303-320, WAC 173-303-640(6), WAC 173-303-640(7)(e) and (f), WAC 173-303-806(4)(a)(v), WAC 173-303-806(4)(c)(vii)];

vi. Updated Chapter 4.0, Narrative Descriptions, Tables and Figures as identified in Permit Tables III.10.E.A through D (as modified pursuant to Permit Condition III.10.E.9.e.xii.) and updated to identify routinely non-accessible tank systems;

vii. Description of procedures for management of ignitable and reactive, and incompatible dangerous and/or mixed waste in accordance with WAC 173-303-640(9) and (10) [WAC 173-303-806(4)(c)(x)].

viii. A description of the tracking system used to track dangerous and/or mixed waste throughout the WTP Unit Tank System, pursuant to WAC 173-303-380.

ix. Permit Tables III.10.E.E through H shall be completed for WTP Unit Tank System process and leak detection system monitors and instruments (to include but not limited to: instruments and monitors measuring and/or controlling flow, pressure, temperature, density, pH, level, humidity, and emission) to provide the information as specified in each column heading. Process and leak detection system monitors and instruments for critical systems as specified in Attachment 51, Appendix 2.0 and as updated pursuant to Permit Condition III.10.C.9.b. and for operating parameters as required to comply with Permit Condition III.10.C.3.e.iii. shall be addressed. Process monitors and instruments for non-waste management operations (e.g., utilities, raw chemical storage, non-contact cooling waters, etc.) are excluded from this permit condition.

x. Supporting documentation for operating trips and expected operating range as specified in Permit Tables III.10.E.E through H as approved pursuant to Permit Condition III.10.E.9.e.ix.

xi. Documentation of process and leak detection instruments and monitors (as listed in Permit Tables III.10.E.E through H) for the WTP Unit Tank Systems to include but not be limited to the following:

A. Procurement specifications;

B. Location used;

C. Range, precision, and accuracy;

D. Detailed descriptions of Calibration/functionality test procedures (e.g., method number [ASTM]) or provide a copy of manufacturer's recommended calibration procedures;

E. Calibration/functionality test, inspection, and routine maintenance schedules and checklists, including justification for calibration, inspection and maintenance

frequencies, criteria for identifying instruments found to be significantly out of calibration, and corrective action to be taken for instruments found to be significantly out of calibration (e.g., increasing frequency of calibration, instrument replacement, etc.);

F. Equipment instrument control logic narrative description (e.g., software functional specifications, descriptions of fail safe conditions, etc.), as identified in Permit Tables III.10.E.E through H not addressed in Permit Condition III.10.E.9.d.

xii. Permit Tables III.10.E.A through D amended as follows:

A. Under column 1, update and complete list of dangerous and/or mixed waste tank systems, including plant items that comprise each system (listed by item number);

B. Under column 2, update and complete system designations;

C. Under column 3, replace the 'reserved' with the Attachment 51, Appendices 8.0, 9.0, 10.0, and 11.0, subsections specific to tank systems as listed in column 1;

D. Under column 4, update and complete list of narrative description tables and figures;

E. Under column 5, update and complete maximum capacity, for each tank.

xiii. Permit Tables III.10.E.I, K, M, and O amended as follows:

A. Under column 1, replace the 'reserved' with the updated and complete list of sump numbers and room location;

B. Under column 2, replace the 'reserved' with the updated and complete maximum sump capacities in gallons;

C. Under column 3, replace the 'reserved' with the updated and complete sump dimensions and materials of construction;

D. Under column 4, replace the 'reserved' with the updated and complete list of engineering descriptions (drawing numbers, specifications, etc.);

~~E. Under column 5, replace the 'reserved' with the updated and complete list of leak detection type for each sump.~~

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Table III.10.E.A – Pretreatment Plant Tank Systems Description

Dangerous and/or mixed waste Tank Systems Name	System Designation	Engineering Description (Drawing Nos., Specifications Nos., etc.)	Narrative Description, Tables & Figures	Maximum Capacity (gallons)
Waste Feed Receipt Vessels V11020A-D (Waste Feed Receipt Process System)	FRP	RESERVED	Section 4.1.2.1; Table 4-3 and 4-11; and Figures 4A-1, 4A-2, 4A-5, 4A-61, 4A-62, 4A-78, 4A-79 of Attachment 51, Chapter 4.0 of this Permit.	V11020A = 388,000 V11020B = 388,000 V11020C = 388,000 V11020D = 388,000
Evaporator Feed Vessels V11001A-B, Evaporator Process Condensate Pot V11005, (Waste Feed Evaporation Process System)	FEP	RESERVED	Section 4.1.2.2; Table 4-3 and 4-11; and Figures 4A-1, 4A-2, 4A-6, 4A-61, 4A-62, 4A-63, 4A-78, 4A-79, 4A-80 of Attachment 51, Chapter 4.0 of this Permit.	V11001A = 59,070 V11001B = 90,070 V11005 = 1,190
LAW Permeate Hold Vessels V12015A-C, Evaporator Concentrate Buffer Vessels V12010A-B, Ultrafiltration Feed Vessels V12011A-B, Ultrafilters G12002A-B, G12003A-B, and G12004A-B (Ultrafiltration Process System)	UFP	RESERVED	Section 4.1.2.3; Table 4-3 and 4-11; and Figures 4A-1, 4A-2, 4A-7, 4A-61, 4A-62, 4A-78, 4A-79 of Attachment 51, Chapter 4.0 of this Permit.	V12015A = 28,390 V12015B = 28,390 V12015C = 28,390 V12010A = 62,340 V12010B = 62,340 V12011A = 26,840 V12011B = 26,840 G12002A = 140 G12002B = 140 G12003A = 140 G12003B = 140 G12004A = 140 G12004B = 140
HLW Feed Blending Vessel V12007, Sr/TRU Lag Storage Vessels V12001A & C, Lag Storage Vessels V12001D & E	HLP	RESERVED	Section 4.1.2.4; Table 4-3 and 4-11; and Figures 4A-1, 4A-2, 4A-8, 4A-61, 4A-62, 4A-78, 4A-79 of Attachment 51, Chapter 4.0	V12007 = 18,070 V12001A = 96,900 V12001C = 96,900

Dangerous and/or mixed waste Tank Systems Name	System Designation	Engineering Description (Drawing Nos., Specifications Nos., etc.)	Narrative Description, Tables & Figures	Maximum Capacity (gallons)
(HLW Lag Storage and Feed Blending Process system)			of this Permit.	V12001D = 96,900 V12001E = 96,900
Cesium Ion Exchange Columns C13001-4, LAW Feed Vessel V13001, Caustic Rinse Collection Vessel V13008, Cs IX Gas Separation Vessels (ID RESERVED), Cesium Reagent Tank (ID RESERVED) (Cesium Ion Exchange Process System)	CXP	RESERVED	Section 4.1.2.5; Table 4-3 and 4-11; and Figures 4A-1, 4A-2, 4A-9, 4A-61, 4A-62, 4A-78, 4A-79 of Attachment 51, Chapter 4.0 of this Permit.	C13001 = 680 C13002 = 680 C13003 = 680 C13004 = 680 V13001 = 61,200 V13008 = 2,400 Cs IX Gas Separation Vessels = RESERVED Cesium Reagent Tank = RESERVED
Eluate Contingency Storage Vessel V13073, Recovered Nitric Acid Vessel V13028, Cesium Concentrate Lute Pot V13030, (Cesium Nitric Acid Recovery Process System)	CNP	RESERVED	Section 4.1.2.6; Table 4-3 and 4-11; and Figures 4A-1, 4A-2, 4A-10, 4A-61, 4A-62, 4A-78, 4A-79 of Attachment 51, Chapter 4.0 of this Permit.	V13073 = 11,060 V13028 = 5,410 V13030 = 70
Technetium Ion Exchange Buffer Vessel V43001, Cs Treated LAW Collection Vessel (ID RESERVED), Technetium Ion Exchange Columns C43006-9, Caustic Rinse Collection Vessel V43056, Treated LAW Buffer Vessels V43110A-C, Tc Reagent Vessels (ID's RESERVED) (Technetium Ion Exchange Process System)	TXP	RESERVED	Section 4.1.2.8; Table 4-3 and 4-11; and Figures 4A-1, 4A-2, 4A-12, 4A-61, 4A-62, 4A-78, 4A-79 of Attachment 51, Chapter 4.0 of this Permit.	V43001 = 18,100 Cs Treated LAW Collection Vessel (ID RESERVED C43006 = 680 C43007 = 680 C43008 = 680 C43009 = 680 V43056 = 3,300 V43110A = 33,050 V43110B = 33,050 V43110C = 33,170

Dangerous and/or mixed waste Tank Systems Name	System Designation	Engineering Description (Drawing Nos., Specifications Nos., etc.)	Narrative Description, Tables & Figures	Maximum Capacity (gallons)
				Tc Reagent Vessels (ID's RESERVED)
Recovered Technetium Eluant Vessel V43071, Technetium Concentrate Lute Pot V43072 (Technetium Eluant Recovery Process System)	TEP	RESERVED	Section 4.1.2.9; Table 4-3 and 4-11; and Figures 4A-1, 4A-2, 4A-13, 4A-61, 4A-78 of Attachment 51, Chapter 4.0 of this Permit.	V43071 = 7,900 V43072 = 70
Process Condensate Hold Vessel V41013, Plant Wash Vessels V45009A-B, LAW SBS Purge Receipt Vessels (ID RESERVED) (Treated LAW Evaporation Process System (TLP)), LAW Buffer Storage Vessel V41001 (Treated LAW Concentrate Storage Process System (TCP))	TLP TCP	RESERVED	Section 4.1.2.11 & 4.2.2.12; Table 4-3 and 4-11; and Figures 4A-1, 4A-2, 4A-16, 4A-61, 4A-62, 4A-78, 4A-79 of Attachment 51, Chapter 4.0 of this Permit.	V41013 = 450 V45009A = 88,920 V45009B = 88,920 LAW SBS Purge Receipt Vessels (ID RESERVED) V41001 = 117,000
Spent Resin Collection Vessels V43135A-B, Resin Flush Collection Vessel V43136, Spent Resin Dewatering Moisture Separation Vessel (ID RESERVED) (Spent Resin and Dewatering Process System)	RDP	RESERVED	Section 4.1.2.13; Table 4-3 and 4-11; and Figures 4A-1, 4A-2, 4A-15, 4A-61, 4A-78 of Attachment 51, Chapter 4.0 of this Permit.	V43135A = 8,720 V43135B = 8,720 V43136 = 11,220 Spent Resin Dewatering Moisture Separation Vessel= RESERVED
Process Condensate Vessels V45028A-B (Pretreatment Plant Radioactive Liquid Waste Disposal System)	RLD	RESERVED	Section 4.1.2.16; Table 4-3; and Figures 4A-1, 4A-2, 4A-18, 4A-61, 4A-62, 4A-78, 4A-79 of Attachment 51, Chapter 4.0 of this Permit.	V45028A = 321,720 V45028B = 321,720
Ultimate Overflow Vessel V15009B, HLW Effluent Transfer Vessel V12002, Primary Acidic/Alkaline Effluent Vessel V45013, Secondary Acidic/Alkaline Effluent Vessel V45018, Alkaline Effluent Vessels V15013 & V15018,	PWD	RESERVED	Section 4.1.2.15; Table 4-3 and 4-11; and Figures 4A-1, 4A-2, 4A-17, 4A-60, 4A-61, 4A-62, 4A-78, 4A-79 of Attachment 51, Chapter 4.0 of this Permit.	V15009B = 23,000 V12002 = 23,000 V45013 = 49,850 V45018 = 49,850 V15013 = 93,180

Dangerous and/or mixed waste Tank Systems Name	System Designation	Engineering Description (Drawing Nos., Specifications Nos., etc.)	Narrative Description, Tables & Figures	Maximum Capacity (gallons)
Plant Wash Vessel V15009A, C3 Floor Drains Tank V15319 (Pretreatment Plant Wash and Disposal System)				V15009A = 73,860 V15319 = 450 V15018 = 93,180
Vessel Vent Header Collection Vessel V15052, Condensate Collection Vessel V15038, HEME Drain Collection Vessels V15326-7 (Pretreatment Vessel Vent Process System)	PVP	RESERVED	Section 4.1.2.17; Table 4-3; and Figures 4A-1, 4A-2, 4A-19, 4A-61, and 4A-78 of Attachment 51, Chapter 4.0 of this Permit.	V15052 = 900 V15038 = 1,230 V15327 = 2,760 V15326 = 820

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Table III.10.E.B – Law Vitrification Plant Tank Systems Description

Mixed Waste Tank Systems Name	Unit Designation	Unit Description	Narrative Description, Tables & Figures	Maximum Capacity (gallons)
Melter 1 Concentrate Receipt Vessel V21001, Melter 2 Concentrate Receipt Vessel V21002 , Melter 3 Concentrate Receipt Vessel V21003 (LAW Concentrate Receipt Process System)	LCP	RESERVED	Section 4.1.3.1; Table 4-4 and 4-11; and Figures 4A-1, 4A-3, 4A-20,of Attachment 51, Chapter 4.0 of this Permit.	V21001 = 14,392 V21002 = 14,392 V21003 = 14,392
Melter 1 Feed Preparation Vessel V21101 , Melter 1 Feed Vessel V21102 , Melter 2 Feed Preparation Vessel V21201 , Melter 2 Feed Vessel V21202 , Melter 3 Feed Preparation Vessel V21301 , Melter 3 Feed Vessel V21302 (LAW Melter Feed Process System)	LFP	RESERVED	Section 4.1.3.1; Table 4-4 and 4-11; and Figures 4A-1, 4A-3, 4A-20, 4A-67, and 4A-83 of Attachment 51, Chapter 4.0 of this Permit.	V21101 = 6,221 V21102 = 6,221 V21201 = 6,221 V21202 = 6,221 V21301 = 6,221 V21302 = 6,221
LAW Caustic Scrubber Blowdown Vessel V22001 (LAW Secondary Off-gas/Vessel Vent Process System)	LVP	RESERVED	Section 4.1.3.3; Table 4-4 and 4-11; and Figures 4A-1, 4A-3, 4A-23 of Attachment 51, Chapter 4.0 of this Permit.	V22001 = 12,191
Melter 1 SBS Condensate Vessel V22101, Melter 2 SBS Condensate Vessel V22201, Melter 3 SBS Condensate Vessel V22301 (LAW Primary Off-gas Process System)	LOP	RESERVED	Section 4.1.3.3; Table 4-4 and 4-11; and Figures 4A-1, 4A-3, 4A-22, 4A-67, and 4A-83 of Attachment 51, Chapter 4.0 of this Permit.	V22101 = 6,833 V22201 = 6,833 V22301 = 6,833
Plant Wash Vessel V25001 , LAW C3/C5 Effluent Collection Vessel V25002 , SBS Condensate Collection Vessel V25003 (LAW Vitrification Plant Radioactive Liquid Waste Disposal System)	RLD	RESERVED	Section 4.1.3.4; Table 4-4 and 4-11; and Figures 4A-1, 4A-2, 4A-25, 4A-66, 4A-67, 4A-82, and 4A-83 of Attachment 51, Chapter 4.0 of this Permit.	V25001 = 25,130 V25002 = 7,218 V25003 = 24,704

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Table III.10.E.C – HLW Vitrification Plant Tank Systems Description

Mixed Waste Tank Systems Name	Unit Designation	Unit Description	Narrative Description, Tables & Figures	Maximum Capacity (gallons)
Concentrate Receipt Vessel V31001 , Concentrate Receipt Vessel2 V31002 (HLW Cave Receipt Process System)	HCP	RESERVED	Section 4.1.4.1; Table 4-5 and 4-11; and Figures 4A-1, 4A-4, 4A-26, 4A-71, 4A-72, 4A-73, 4A-86, and 4A-87 of Attachment 51, Chapter 4.0 of this Permit.	V31001 = 17,900 V31002 = 17,900
Feed Preparation Vessel V31101 , HLW Melter Feed Vessel V31102 (HLW Melter Feed Process System)	HFP	RESERVED	Section 4.1.4.1; Table 4-5 and 4-11; and Figures 4A-1, 4A-4, 4A-26, 4A-72, 4A-73, 4A-86,and 4A-87, of Attachment 51, Chapter 4.0 of this Permit.	V31101 = 8,800 V31102 = 8,800
SBS Condensate Collection Vessel V32101 (Melter Off-gas Treatment Process System-Primary System)	HOP	RESERVED	Section 4.1.4.3; Table 4-5 and 4-11; and Figures 4A-1, 4A-4, 4A-28, 4A-71, and 4A-86 of Attachment 51, Chapter 4.0 of this Permit.	V32101 = 10,000
Canister Bogie Decontamination Vessel V33004, Waste Neutralization Vessel V33002 , Canister Decontamination Vessel V33001 (HLW Canister Decontamination Handling System)	HDH	RESERVED	Section 4.1.4.5; Table 4-5 and 4-11; and Figures 4A-1, 4A-4, 4A-30, 4A-71, 4A-72, 4A-86, 4A-87 of Attachment 51, Chapter 4.0 of this Permit.	V33004 = 2,500 V33002 = 5,300 V33001 = 580
Acidic Waste Vessel V35002 , Plant Wash and Drains Vessel V35003, Decontamination Effluent Collection Vessel V35009, Off-gas Drains Collection Vessel V35038 (HLW Vitrification Plant Radioactive Liquid Waste Disposal System)	RLD	RESERVED	Section 4.1.4.4; Table 4-5 and 4-11; and Figures 4A-1, 4A-4, 4A-31, 4A-71, 4A-72, 4A-73,4A-86, 4A-87 of Attachment 51, Chapter 4.0 of this Permit.	V35002 = 16,700 V35003 = 13,200 V35009 = 7,300 V35038 = 7,280

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Table III.10.E.D – Analytical Laboratory Tank Systems Description

Mixed Waste Tank Systems Name	Unit Designation	Unit Description	Narrative Description, Tables & Figures	Maximum Capacity (gallons)
Lab Liquid Effluent Collection Vessel V60001a, Lab Liquid Effluent Collection Vessel V60001b (Analytical Laboratory Tank System)	LAB	RESERVED	Section 4.1.5; Table 4-6 and 4-11; and Figures 4A-1, 4A-2, and 4A-113 of Attachment 51, Chapter 4.0 of this Permit.	V60001a = 12,063 V60001b = 12,063

Table III.10.E.E – Pretreatment Plant Tank System Process and Leak Detection System Instruments and ~~Process~~ Parameters

Tank System Locator and Name (including P&ID)	Control Parameter	Type of Measuring or Leak Detection Instrument	Location of Measuring Instrument (Tag No.)	Instrument Range	Expected Range	Fail States	Instrument Accuracy	Operating Trips (Description & Numerical Limits)	Instrument Calibration Method No. and Range
PWD-SUMP-00071 P-B005 (Pit-19)	Not Applicable	Radar	RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	Not Applicable	RESERVED
PWD-SUMP-00040 P-B002 (Pit-45)	Not Applicable	Bubbler	RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	Not Applicable	RESERVED
RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	RESERVED

Table III.10.E.F – LAW Vitrification Plant Tank System Process and Leak Detection System Instruments and ~~Process~~ Parameters

Tank System Locator and Name (including P&ID)	Control Parameter	Type of Measuring or Leak Detection Instrument	Location of Measuring Instrument (Tag No.)	Instrument Range	Expected Range	Fail States	Instrument Accuracy	Operating Trips (Description & Numerical Limits)	Instrument Calibration Method No. and Range
RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	RESERVED

Table III.10.E.G - HLW Vitrification Plant Tank System Process and Leak Detection System Instruments and ~~Process~~ Parameters

Tank System Locator and Name (including P&ID)	Control Parameter	Type of Measuring or Leak Detection Instrument	Location of Measuring Instrument (Tag No.)	Instrument Range	Expected Range	Fail States	Instrument Accuracy	Operating Trips (Description & Numerical Limits)	Instrument Calibration Method No. and Range
RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	RESERVED

Table III.10.E.H – Laboratory Tank System Process and Leak Detection System Instruments and ~~Process~~ Parameters

Tank System Locator and Name (including P&ID)	Control Parameter	Type of Measuring or Leak Detection Instrument	Location of Measuring Instrument (Tag No.)	Instrument Range	Expected Range	Fail States	Instrument Accuracy	Operating Trips (Description & Numerical Limits)	Instrument Calibration Method No. and Range
RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	RESERVED

Table III.10.E.I – Pretreatment Plant Tank Systems Primary[a] Containment Sump Systems

Sump I.D.# & Room Location	Maximum Sump Capacity (gallons)	Sump Dimensions (feet) & Materials of Construction	Engineering Description (Drawing Nos., Specifications Nos., etc.)	~~Leak Detection Type~~
RESERVED	RESERVED	RESERVED	RESERVED	~~RESERVED~~

[a] Primary sumps are defined in Permit Section III.10.C, and must comply with dangerous waste tank system requirements for tanks as described in WAC-173-303-640.

Table III.10.E J – Pretreatment Plant Tank Systems Secondary Containment Systems Including Sumps and Floor Drains

Sump I.D.# & Room Location	Maximum Sump Capacity (gallons)	Sump Type/Nominal Operating Volume (gallons)	Sump Dimensions (~~feet~~ inches) & Materials of Construction	Engineering Description (Drawing Nos., Specifications Nos., etc.)	~~Leak Detection Type~~
PWD-SUMP-00071 P-B005 (Pit-19)	112.2	Dry Sump[a]	24”x30”x36” Coating Type (RESERVED)	24590-PTF-M6-PWD-P00041	~~RESERVED~~
PWD-SUMP-00040 P-B002 (Pit-45)	233.7	Wet Sump/ 140.3	60”x30”x30” 6Mo	24590-PTF-M6-PWD-P00012	~~RESERVED~~
RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	~~RESERVED~~

[a]This sump is routinely accessible for inspections and maintenance.

Table III.10.E K - LAW Vitrification Plant Tank Systems Primary[a] Containment Sump Systems

Sump I.D.# & Room Location	Maximum Sump Capacity (gallons)	Sump Dimensions (feet) & Materials of Construction	Engineering Description (Drawing Nos., Specifications Nos., etc.)	~~Leak Detection Type~~
RESERVED	RESERVED	RESERVED	RESERVED	~~RESERVED~~

[a] Primary sumps are defined in Permit Section III.10.C, and must comply with dangerous waste tank system requirements for tanks as described in WAC-173-303-640.

Table III.10.E.L - LAW Vitrification Plant Tank Systems Secondary Containment Systems Including Sumps and Floor Drains

Sump I.D.# & Room Location	Maximum Sump Capacity (gallons)	Sump Type/Nominal Operating Volume (gallons)	Sump Dimensions (~~feet~~ inches) & Materials of Construction	Engineering Description (Drawing Nos., Specifications Nos., etc.)	~~Leak Detection Type~~
RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	~~RESERVED~~

Table III.10.E M - HLW Vitrification Plant Tank Systems Primary[a] Containment Sump Systems

Sump I.D.# & Room Location	Maximum Sump Capacity (gallons)	Sump Dimensions (feet) & Materials of Construction	Engineering Description (Drawing Nos., Specifications Nos., etc.)	~~Leak Detection Type~~
RESERVED	RESERVED	RESERVED	RESERVED	~~RESERVED~~

[a] Primary sumps are defined in Permit Section III.10.C, and must comply with dangerous waste tank system requirements for tanks as described in WAC-173-303-640.

Table III.10.E N - HLW Vitrification Plant Tank Systems Secondary Containment Systems Including Sumps and Floor Drains

Sump I.D.# & Room Location	Maximum Sump Capacity (gallons)	Sump Type/Nominal Operating Volume (gallons)	Sump Dimensions (~~feet~~ inches) & Materials of Construction	Engineering Description (Drawing Nos., Specifications Nos., etc.)	~~Leak Detection Type~~
RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	~~RESERVED~~

Table III.10.E O – Laboratory Tank Systems Primary[a] Containment Sump Systems

Sump I.D.# & Room Location	Maximum Sump Capacity (gallons)	Sump Dimensions (feet) & Materials of Construction	Engineering Description (Drawing Nos., Specifications Nos., etc.)	~~Leak Detection Type~~
RESERVED	RESERVED	RESERVED	RESERVED	~~RESERVED~~

[a] Primary sumps are defined in Permit Section III.10.C, and must comply with dangerous waste tank system requirements for tanks as described in WAC-173-303-640.

Table III.10.E P – Laboratory Tank Systems Secondary Containment Systems Including Sumps and Floor Drains

Sump I.D.# & Room Location	Maximum Sump Capacity (gallons)	Sump Type/Nominal Operating Volume (gallons)	Sump Dimensions (~~feet~~ inches) & Materials of Construction	Engineering Description (Drawing Nos., Specifications Nos., etc.)	~~Leak Detection Type~~
RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	~~RESERVED~~

III.10.F. CONTAINMENT BUILDING UNITS

III.10.F.1. Containment Building Units and Storage Limits

III.10.F.1.a. Approved Waste and Storage Limits

i. The Permittees may store and treat, in containment building units listed in Permit Table III.10.F.A., as modified by Permit Condition III.10.F.7.d.iv., all dangerous and mixed waste listed in the Part A Forms, Attachment 51, Chapter 1.0 of this Permit**,** except for those wastes outside the waste acceptance criteria specified in the WAP, Attachment 51, Chapter 3.0, as approved pursuant to Permit Condition III.10.C.3. Total dangerous and mixed waste storage at the containment building units shall not exceed the sum of the capacities in column 7 of Permit Table III.10.F.A., as modified pursuant to Permit Condition III.10.F.7.d.iv.

ii. The Permittees may place and store dangerous and mixed waste only in the containment building units listed in Permit Table III.10.F.A., as modified pursuant to Permit Condition III.10.F.7.d.iv., in accordance with Permit Condition III.10.F., and in accordance with Attachment 51, Chapters 1.0 and 4.0, and Attachment 51, Appendices 8.1, 8.2, 8.4 through 8.10, 8.13, 8.15, 9.1, 9.2, 9.4 through 9.10, 9.13, 9.18, 10.1, 10.2, 10.4 through 10.10, 10.13, and 10.18 of this Permit, as approved pursuant to Permit Conditions III.10.F.7.c. and III.10.F.7.d. The Permittees shall limit the volume of dangerous and mixed waste to quantities specified for the individual areas listed in column 7 of Permit Table III.10.F.A., as modified pursuant to Permit Condition III.10.F.7.d.iv.

III.10.F.1.b. The Permittees shall manage any ignitable, reactive, or incompatible waste in these units in accordance with WAC 173-303-395(1). Any containment building units specified in Permit Table III.10.F.A. in which ignitable, reactive, or incompatible waste are managed shall meet the requirements specified in WAC 173-303-640(9) and (10), in accordance with WAC 173-303-680(2).

III.10.F.1.c. The Permittees must maintain documentation in the operating record of the description and quantity of dangerous waste in each containment building unit listed in Permit Table III.10.F.A., as modified pursuant to Permit Condition III.10.F.7.d.iv., ~~pursuant to~~ in accordance with WAC 173-303-380.

III.10.F.1.d. The Permittees shall ensure all certifications required by specialists (e.g., qualified, registered, professional engineer, etc.) use the following statement or equivalent pursuant to Permit Condition III.10.C.10., of this Permit:

"I, (Insert Name) have (choose one or more of the following: overseen, supervised, reviewed, and/or certified) a portion of the design or installation of a new containment building unit or component located at (address), and owned/operated by (name(s)). My duties were: (e.g., design engineer, etc.), for the following containment building unit components (e.g., the venting piping, etc.), as required by the Resource Conservation and Recovery Act (RCRA) regulation(s), namely, 40 CFR 264.1101(c)(2) in accordance with WAC 173-303-695).

"I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment."

III.10.F.2. Containment Building Unit Design and Construction

III.10.F.2.a. The Permittees shall design and construct the containment building units identified in Permit Table III.10.F.A., as modified pursuant to Permit Condition III.10.F.7.d.iv., as specified in Attachment 51, Appendices 8.1, 8.2, 8.4 through 8.10, 8.13, 8.15, 9.1, 9.2, 9.4 through 9.10, 9.13, 9.18, 10.1, 10.2, 10.4 through 10.10, 10.13, and 10.18 of this Permit, as approved in accordance with Permit Condition III.10.F.7.a. of this Permit and WAC 173-303-695.

III.10.F.2.b. The Permittees shall design and construct all applicable containment building units' secondary containment systems for each unit listed in Permit Table III.10.F.A., as specified in Attachment 51, Appendices 8.4 through 8.9, 8.15, 9.4 through 9.9, 9.18, 10.4 through 10.9, and 10.18 of this Permit, as approved in accordance with Permit Condition III.10.F.7.a. of this Permit and WAC 173-303-695.

III.10.F.2.c. Modifications to approved design plans and specifications, in Attachment 51, Appendices 8.1, 8.2, 8.4 through 8.10, 8.13, 8.15, 9.1, 9.2, 9.4 through 9.10, 9.13, 9.18, 10.1, 10.2, 10.4 through 10.10, 10.13, and 10.18 for the containment building units shall be allowed only in accordance with Permit Conditions III.10.C.2.e. and III.10.C.2.f., or III.10.C.2.g., III.10.C.9.d, and III.10.C.9.e.

III.10.F.3. Containment Building Unit Management Practices

III.10.F.3.a. The Permittees shall manage all dangerous and mixed waste in containment building units in accordance with procedures described in Attachment 51, Appendices 8.15, 9.18, 10.18 and Chapter 4.0 of this Permit, as approved pursuant to Permit Condition III.10.F.7.d.iv. of this Permit.

III.10.F.3.b. The Permittees shall follow the description of operating procedures described in Attachment 51, Appendices 8.15, 9.18, 10.18 and Chapter 4, as approved pursuant to Permit Condition III.10.F.7.d.iv. and Permit Condition III.10.F.3., and as specified below:

i. Maintain the primary barrier to be free of significant cracks, gaps, corrosion, or other deterioration that could cause dangerous and mixed waste to be released from the primary barrier;

ii. Maintain the level of stored/treated dangerous and mixed waste within the containment building unit walls so that the height of the wall is not exceeded;

iii. Take measures to prevent the tracking of dangerous and mixed waste out of the unit by personnel or by equipment used in handling the waste. An area must be designated to decontaminate equipment and any rinsate must be collected and properly managed;

iv. Maintain the containment building unit at all times to prevent the spread of airborne dangerous and/or mixed waste contamination into less contaminated or uncontaminated areas. All air pollution control devices for exhaust from containment building unit must be properly maintained and operational when storing or treating dangerous and mixed waste in the containment building units;

v. Collect and remove liquids and waste to minimize hydraulic head on the containment system at the earliest practicable time.

III.10.F.3.c. The Permittees shall inspect the containment building units per requirements in the Attachment 51, Chapter 6.0 as approved pursuant to Permit Condition III.10.C.5., 40 CFR 264.1101(c)(4),in accordance with WAC 173-303-695 and WAC 173-303-320 and record in the Facility's operating record, at least once every seven (7) days, data gathered from monitoring equipment and leak detection equipment as well as the containment building unit

and area immediately surrounding the containment building unit to detect signs of releases of dangerous and mixed waste.

III.10.F.3.d. Throughout the active life of the containment building unit, if the Permittees detects a condition that could lead to or has caused a release of dangerous and/or mixed waste, the Permittees must repair the condition promptly, in accordance with the following procedures:

i. Upon detection of a condition that has lead to the release of dangerous and/or mixed waste (e.g., upon detection of leakage from the primary barrier) the Permittees must:

A. Enter a record of the discovery in the facility operating record;

B. Immediately remove the portion of the containment building unit affected by the condition from service;

C. Determine what steps must be taken to repair the containment building unit, remove any leakage from the secondary collection system, and establish a schedule for accomplishing the cleanup and repairs; and

D. Within seven (7) days after the discovery of the condition, notify Ecology of the condition, and within fourteen (14) working days, provide a written notice to Ecology with a description of the steps taken to repair the containment building unit, and the schedule for accomplishing the work.

ii. Ecology will review the information submitted, make a determination regarding whether the containment building unit must be removed from service completely or partially until repairs and cleanup are complete, and notify the Permittees of the determination and underlying rationale in writing.

iii. Upon completing all repairs and cleanup the Permittees must notify Ecology in writing and provide verification, signed by a qualified, registered, professional engineer, that repairs have been completed according to the written notice submitted in accordance with Permit Condition III.10.F.3.d.i.D.

III.10.F.4 Inspections [WAC 173-303-640(6)]

III.10.F.4.a. The Permittees shall inspect the containment building units in accordance with the Inspection Schedules in Attachment 51, Chapter 6.0 of this Permit, as modified pursuant to Permit Condition III.10.C.5.c.

III.10.E.4.b. The inspection data for the containment building units shall be recorded, and the records shall be placed in the WTP Unit operating record, in accordance with Permit Condition III.10.C.4.

III.10.F.5 Recordkeeping (WAC 173-303-380)

For the containment building units, the Permittees shall record and maintain in the WTP Unit operating record, all monitoring, calibration, recording, maintenance, test data, and inspection data compiled under the conditions of this Permit, in accordance with Permit Condition III.10.C.4. and III.10.C.5.

III.10.F.6. Closure

The Permittees shall close the containment building units in accordance with Attachment 51, Chapter 11.0 of this Permit, as approved pursuant to Permit Condition III.10.C.8.

III.10.F.7. Compliance Schedule

III.10.F.7.a. All information identified for submittal to Ecology in b. through e. of this compliance schedule must be signed in accordance with requirements in WAC 173-303-810(12), as modified in accordance with Permit Condition III.10.F.1.d. [WAC 173-303-806(4)].

III.10.F.7.b. Prior to initial receipt of dangerous and/or mixed waste, the Permittees shall submit to Ecology a certification by a qualified, registered, professional engineer that the containment building units design meets the requirements of Permit Conditions II.10.F.1.and III.10.F.2. in accordance with Permit Condition III.10.F.7.a. The certification will also be stored in the WTP Unit operating record. For containment buildings units in Permit Table III.10.F.A., as modified pursuant to Permit Condition III.10.F.7.d.iv., identified as allowed to manage free liquids, the certification shall include an additional demonstration that the containment building meets the requirements specified in 40 CFR 264.1101(b), in accordance with WAC 173-303-695.

III.10.F.7.c. The Permittees shall submit to Ecology pursuant to Permit Condition III.10.C.9.f., prior to construction of the containment building unit containment system, and as appropriate, leak detection system for each containment building unit (per level, per WTP Unit building) as identified in Permit Condition III.10.F.1., Permit Tables III.10.F.A., engineering information as specified below, for incorporation, as appropriate, into Attachment 51, Appendices 8.1, 8.2, 8.3, 8.4 through 8.10, 8.13, 8.15, 9.1, 9.2, 9.4 through 9.10, 9.13, 9.18, 10.1, 10.2, 10.4 through 10.10, 10.13, and 10.18 of this Permit. At a minimum, engineering information specified below will show the following as required in accordance with WAC 173-303-695 (the information specified below will include dimensioned engineering drawings showing floors, walls, and ceilings/roof of the containment building units and other information on floor drains and sumps):

i. Design drawings (General Arrangement Drawings in plan and cross sections) and specifications for the foundation, containment, including liner/coating installation details and leak detection methodology, as appropriate [40 CFR 264.1101(a)(1) and (b), in accordance with WAC 173-303-695].

ii. The Permittees shall provide the design criteria (references to codes and standards, load definitions and load combinations, materials of construction, and analysis/design methodology) and typical design details for the support of the containment system. This information shall demonstrate the foundation will be capable of providing support to the secondary containment system, resistance to pressure gradients above and below the system, and capable of preventing failure due to settlement, compression, or uplift [40 CFR 264.1101(a)(2) in accordance with WAC 173-303-695, in accordance with WAC 173-303-695].

iii. The Permittees shall provide documentation addressing how coatings will withstand the movement of personnel, waste, and equipment during the operating life of the containment building per 40 CFR 264.1101(a)(2), (a)(4), and (b) in accordance with WAC 173-303-695.

iv. Containment/foundation and, as appropriate, for leak detection systems, materials selection documentation (including, but not limited to, concrete coatings and water stops, and liner materials as applicable [e.g. physical and chemical tolerances]) [40 CFR 264.1101(a)(4) and (b) in accordance with WAC 173-303-695].

v. A detailed description of how the containment/foundation and, as appropriate, leak detection systems, will be installed.

vi. Submit Permit Tables III.10.F.B and III.10.F.C, completed to provide for all secondary containment sumps and floor drains, the information as specified in each column heading, consistent with the information to be provided in i. through viii.

vii. A detailed description of how fugitive emissions will be controlled such that any openings (e.g., doors, windows, vents, cracks, etc.) exhibit no visible emissions [40 CFR 264.1101(c)(1)(iv) in accordance with WAC 173-303-695].

viii. Prior to installation, the Permittees shall submit coating vendor information specific to containment buildings for incorporation into the Administrative Record [40 CFR 264.1101(a)(4) and (b) in accordance with WAC 173-303-695].

ix. Prior to installation, leak detection system documentation (e.g. vendor information, etc.) consistent with information submitted under i. above, shall be submitted for incorporation into the Administrative Record;

x. Prior to installation, the Permittees shall submit leak detection system instrumentation control logic narrative description (e.g., software functional specifications, descriptions of fail-safe conditions, etc.);

xi. Prior to installation, system descriptions related to leak detection systems (including instrument control logic and narrative descriptions) shall be submitted for incorporation into the Administrative Record;

xii. For leak detection system instrumentation for containment buildings as identified in Permit Tables III.10.F.D., a detailed description of how the leak detection system instrumentation will be installed and tested [40 CFR 264.1101(b)(3) in accordance with WAC 173-303-695] shall be submitted prior to installation.

III.10.F.7.d Prior to initial receipt of dangerous and mixed waste, in the WTP Unit, the Permittees shall submit the following, as specified below, for incorporation into Attachment 51. The information specified below into Attachment 51, and incorporated pursuant to Permit Condition III.10.C.2.g. shall be followed:

i. Registered Professional Engineer certification documentation consistent with the information provided in III.10.F.7.b. and III.10.F.7.c. for incorporation in the Administrative Record. The certification must be maintained in the WTP Unit Operating Record [40 CFR 264.1101(c)(2)];

ii. Updated Chapter 4.0, Section 4.2.1., and the figures for containment building units identified in Permit Table III.10.F.A. (as modified pursuant to Permit Condition III.10.F.7.d.iv., consistent with Attachment 51, Appendices 8.1, 8.2, 8.4 through 8.10, 8.13, 8.15, 9.1, 9.2, 9.4 through 9.10, 9.13, 9.18, 10.1, 10.2, 10.4 through 10.10, 10.13, and 10.18, as approved pursuant Permit Conditions III.10.F.7.a. through d.);

iii. Description of operating procedures demonstrating compliance with 40 CFR 264.1101(c) and (d) in accordance with WAC 173-303-695;

iv. Permit Table III.10.F.A., amended as follows:

A. Under column 1, update and complete list of dangerous and mixed waste containment building units including room location and number.

B. Under column 2, update unit dimensions.

C. Under column 3, replace the 'Reserved' with the Attachment 51, Appendices 8.0, 9.0, and 10.0, subsections specific to containment building units as listed in column 1.

D. Under column 4, update and complete list of narrative description, tables, and figures.

E. Under column 5, replace the 'Reserved' to indicate if container storage is used in each containment building units (Yes or No) consistent with Permit Table III.10.D.A. updated pursuant to Permit Condition III.10.D.10.d.

F. Under column 6, replace the 'Reserved' to indicate if tank storage is used in each containment building units (Yes or No) consistent with Permit Tables III. 10.E.A-D., updated pursuant to Permit Condition III.10.E.9.e.vi.

G. Under column 7, replace the 'Reserved' with the maximum capacity for each containment building unit, to include the container storage capacity specified in Permit Table III.10.D.A., tank capacity specified in Permit Tables III. 10.E.A-D. and update the total capacity for the containment building units.

H. Under column 8, update the status of each containment building unit.

III.10.F.7.e. All information provided under Permit Condition III.10.F.7.d. must be consistent with information provided pursuant to Permit Conditions III.10.F.7.a. through d., as approved by Ecology.

Table III.10.F.A. – Containment Building Unit Description

Mixed Waste Containment Building Units[a] & Systems	Dimensions (LxWxH) (in feet)	Unit Description	Narrative Description and Figures	Container Storage Areas[b]	Tank Systems[c]	Containment Building Capacity (cu ft)	Manage Free Liquids
Pretreatment Hot Cell Containment Building	414x54x46	RESERVED	Section 4.3.4 Fig. 4A-78	RESERVED	RESERVED	RESERVED	Yes
Pretreatment Maintenance Containment Building	(98x56x18) + (54x5x18) + (54x78x18) + (18x98x18)	RESERVED	Section 4.3.4 Fig. 4A-78	RESERVED	RESERVED	RESERVED	Yes
Pretreatment Air Filtration Containment Building	234x54x19	RESERVED	Section 4.3.4 Fig. 4A-80, -81	RESERVED	RESERVED	RESERVED	No
LAW LSM Gallery Containment Building	151x62x25	RESERVED	Section 4.3.4 Fig. 4A-83	RESERVED	RESERVED	RESERVED	Yes
ILAW Container Finishing Containment Building	98x31x25	RESERVED	Section 4.3.4 Fig. 4A-83	RESERVED	RESERVED	RESERVED	No
Law Vitrification Plant C3 Workshop Containment Building	35x40x20	RESERVED	Section 4.3.4 Fig. 4A-85	RESERVED	RESERVED	RESERVED	Yes
HLW Melters 1 and 2 Containment Buildings	35x107x49	RESERVED	Section 4.3.4 Fig. 4A-87	RESERVED	RESERVED	RESERVED	No
IHLW Container Weld Containment Building	140x18x48	RESERVED	Section 4.3.4 Fig. 4A-88	RESERVED	RESERVED	RESERVED	No
IHLW Container Decontamination Building	10x80x58	RESERVED	Section 4.3.4 Fig. 4A-88	RESERVED	RESERVED	RESERVED	No
HLW Vitrification Plant C3 Workshop Containment Building	30x27x19 + 33x15x19	RESERVED	Section 4.3.4 Fig.4A-89	RESERVED	RESERVED	RESERVED	No
HLW Air Filtration Containment Building	104x38x19	RESERVED	Section 4.3.4 Fig. 4A-88	RESERVED	RESERVED	RESERVED	No
HLW Drum Transfer Containment Building	220x10x10	RESERVED	Section 4.3.4 Fig. 4A-86	RESERVED	RESERVED	RESERVED	Yes

[a.] Containment Building Units include associated process systems and equipment
[b] Requirements pertaining to the containers in the Containment Building Units are specified in Section III.10.D. of this Permit.
[c] Requirements pertaining to the tanks in the Containment Building Units are specified in Section III.10.E. of this Permit.

Table III.10.F.B. – Containment Building Primary[a] Containment Sump Systems

Sump I.D.# & Room Location	Maximum Capacity (gallons)	Dimensions (feet) & Materials of Construction	Maximum Allowable Liquid Height (inches)	Secondary Containment Volume (gallons)	Unit Description Drawings[#]	~~Leak Detection Type~~
RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	~~RESERVED~~

[a] Primary sumps are defined in Permit Section III.10.C, and must comply with dangerous waste tank system requirements for tanks as described in WAC-173-303-640.

Table III.10.F.C. – Containment Building Secondary Containment Systems Including Sumps and Floor Drains

Sump I.D.# & Room Location	Maximum Capacity (gallons)	Dimensions (feet) & Materials of Construction	Maximum Allowable Liquid Height (inches)	Secondary Containment Volume (gallons)	Unit Description Drawings[#]	~~Leak Detection Type~~
RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	~~RESERVED~~

Table III.10.F.D – Containment Building Leak Detection System Instrumentation and Parameters

Containment Building Locator and Name (including P&ID)	Control Parameter	Type of Leak Detection Instrument	Location of Leak Detection Instrument (Tag No.)	Leak Detection Instrument Range	Expected Range	Fail States	Leak Detection Instrument Accuracy	Leak Detection Instrument Calibration Method No. and Range
RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	RESERVED

III.10.G PRETREATMENT PLANT MISCELLANEOUS UNIT SYSTEMS

For purposes of Permit Section III.10.G., where reference is made to WAC 173-303-640, the following substitutions apply: substitute the terms "Pretreatment Plant Miscellaneous Unit System(s)" for "tank system(s)," "miscellaneous unit(s)" for "tank(s)," "equipment" for "ancillary equipment," and "miscellaneous unit(s) or equipment of a Pretreatment Plant Miscellaneous Unit System" for "component(s)" in accordance with WAC 173-303-680.

III.10.G.1 Approved Waste and Storage Limits

III.10.G.1.a. The Permittees may process, in the Pretreatment Plant Miscellaneous Unit Systems listed in Permit Table III.10.G.A, as approved/modified pursuant to Permit Condition III.10.G.10, all dangerous and mixed waste listed in the Part A Forms, Attachment 51, Chapter 1.0 of this Permit, and in accordance with in the WAP, Attachment 51, Chapter 3.0 of this Permit, as approved pursuant to Permit Condition III.10.C.3. Total Pretreatment Plant Miscellaneous Unit dangerous and mixed waste storage at the Facility shall not exceed the limits specified in Permit Table III.10.G.A.

III.10.G.1.b. The Permittees may process dangerous and mixed waste only in approved Pretreatment Plant Miscellaneous Unit Systems listed in Permit Table III.10.G.A in accordance with Permit Section III.10.G and in accordance with Attachment 51, Chapters 1.0 and 4.0 of this Permit, and Attachment 51, Appendices 8.1 through 8.15 of this Permit, as approved pursuant to Permit Conditions III.10.G.10.b. through e. The Permittees shall limit the total volume of wastes to quantities specified for the individual miscellaneous units listed in Permit Table III.10.G.A.

III.10.G.1.c. The Permittees shall manage ignitable and reactive, and incompatible waste in accordance with WAC 173-303-395(1). Any Pretreatment Plant Miscellaneous Unit System specified in Permit Tables III.10.G.A and III.10.G.B in which ignitable, reactive or incompatible waste are managed shall meet the requirements specified in WAC 173-303-640(9) and (10), in accordance to WAC 173-303-680.

III.10.G.1.d. The Permittees shall ensure all certifications required by specialists (e.g., independent, qualified, registered professional engineer; independent corrosion expert; independent, qualified installation inspector; etc.) use the following statement or equivalent pursuant to Permit Condition III.10.C.10:

"I, (Insert Name) have (choose one or more of the following: overseen, supervised, reviewed, and/or certified) a portion of the design or installation of a new miscellaneous unit system or component located at (address), and owned/operated by (name(s)). My duties were: (e.g., installation inspector, testing for tightness, etc.), for the following miscellaneous unit system components (e.g., the venting piping, etc.), as required by the Dangerous Waste Regulations, namely, WAC 173-303-640(3) (applicable paragraphs (i.e., (a) through (g)) in accordance with WAC 173-303-680).

"I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment."

III.10.G.1.e. In all future narrative permit submittals, the Permittees shall include miscellaneous unit system names with the unit designation (e.g., Waste Feed Evaporator Separator Vessels are designated V11002A and V11002B, respectively).

III.10.G.2 Miscellaneous Unit Systems Design and Construction [WAC 173-303-640, in accordance with WAC 173-303-680(2) and WAC 173-303-340].

III.10.G.2.a. The Permittees shall construct the Pretreatment Plant Miscellaneous Unit Systems identified in Permit Table III.10.G.A, as specified in Attachment 51, Appendices 8.1 through 8.14 of this Permit, as approved pursuant to Permit Conditions III.10.G.10.b., III.10.G.10.c., and III.10.G.10.d.

III.10.G.2.b. The Permittees shall construct secondary containment systems for the Pretreatment Plant Miscellaneous Unit Systems identified in Permit Tables III.10.G.A and III.10.G.B, as specified in Attachment 51, Appendices 8.2, 8.4 through 8.14 of this Permit, as approved pursuant to Permit Conditions III.10.G.10.b., III.10.G.10.c., and III.10.G.10.d.

III.10.G.2.c. Modifications to approved design, plans, and specifications in Attachment 51 of this Permit for the Pretreatment Plant Miscellaneous Unit Systems shall be allowed only in accordance with Permit Conditions III.10.C.2.e. and f., or III.10.C.2.g., III.10.C.9.d., e., and h.

III.10.G.3 Miscellaneous Unit System Installation and Certification [WAC 173-303-640, in accordance with WAC 173-303-680(2) and (3), and WAC 173-303-340].

III.10.G.3.a. The Permittees must ensure that proper handling procedures are adhered to in order to prevent damage to Pretreatment Plant Miscellaneous Unit Systems during installation. Prior to covering, enclosing, or placing a new Pretreatment Plant Miscellaneous Unit System(s) or component(s) in use, an independent, qualified, installation inspector or an independent, qualified, registered professional engineer, either of whom is trained and experienced in the proper installation of similar systems or components, must inspect the system for the presence of any of the following items:

i. Weld breaks;

ii Punctures;

iii. Scrapes of protective coatings;

iv. Cracks;

v. Corrosion;

vi. Other structural damage or inadequate construction/installation;

vii. All discrepancies must be remedied before the Pretreatment Plant Miscellaneous Unit Systems are covered, enclosed, or placed in use [WAC 173-303-640(3)(c) in accordance with WAC 173-303-680(2) and (3)].

III.10.G.3.b. For Pretreatment Plant Miscellaneous Unit Systems or components that are placed underground and that are back-filled, the Permittees must provide a backfill material that is a non-corrosive, porous, homogeneous substance. The backfill must be installed so that it is placed completely around the miscellaneous unit and compacted to ensure that the miscellaneous unit and piping are fully and uniformly supported [WAC 173-303-640(3)(d), in accordance with WAC 173-303-680(2) and (3)].

III.10.G.3.c. The Permittees must test for tightness all new Pretreatment Plant miscellaneous units and equipment, prior to being covered, enclosed, or placed into use. If the Pretreatment Plant Miscellaneous Unit Systems are found not to be tight, all repairs necessary to remedy the leak(s) in the system must be performed prior to the Pretreatment Plant Miscellaneous Units Systems being covered, enclosed, or placed in use [WAC 173-303-640(3)(e), in accordance with WAC 173-303-680(2) and (3)].

III.10.G.3.d. The Permittees must ensure Pretreatment Plant Miscellaneous Unit Systems equipment is supported and protected against physical damage and excessive stress due to settlement, vibration, expansion, or contraction [WAC 173-303-640(3)(f), in accordance with WAC 173-303-680(2) and (3)].

III.10.G.3.e. The Permittees must provide the type and degree of corrosion protection recommended by an independent corrosion expert, based on the information provided in Attachment 51, Appendices 8.9 and 8.11 as approved pursuant to Permit Conditions III.10.G.10.b.i., III.10.G.10.b.i.v., III.10.G.10.b.v., III.10.G.10.c.i., III.10.G.10.c.i.v., III.10.G.10.c.v., and III.10.G.10.d.i., III.10.G.10.d.iv. III.10.G.10.d.v., or other corrosion protection if Ecology believes other corrosion protection is necessary to ensure the integrity of the Pretreatment Plant Miscellaneous Unit Systems during use of the Pretreatment Plant Miscellaneous Unit Systems. The installation of a corrosion protection system that is field fabricated must be supervised by an independent corrosion expert to ensure proper installation [WAC 173-303-640(3)(g), in accordance with WAC 173-303-680(2) and (3)].

III.10.G.3.f. Prior to initial receipt of dangerous and/or mixed waste in the WTP Unit, the Permittees shall obtain, and keep on file in the WTP Unit operating record, written statements by those persons required to certify the design of the Pretreatment Plant Miscellaneous Unit Systems and supervise the installation of the Pretreatment Plant Miscellaneous Unit Systems, as specified in WAC 173-303-640(3)(b), (c), (d), (e), (f), and (g), in accordance with WAC 173-303-680, attesting that each Pretreatment Plant Miscellaneous Unit System and corresponding containment system listed in Permit Tables III.10.G.A and III.10.G.B, as approved/modified pursuant to Permit Condition III.10.G.10., were properly designed and installed, and that repairs, in accordance with WAC 173-303-640(3)(c) and (e), were performed [WAC 173-303-640(3)(a), WAC 173-303-640(3)(h), in accordance with WAC 173-303-680(3)].

III.10.G.3.g. The independent Pretreatment Plant Miscellaneous Unit System installation inspection and subsequent written statements shall be certified in accordance with WAC 173-303-810(13)(a) as modified pursuant to Permit Condition III.10.G.1.d., comply with all requirements of WAC 173-303-640(3)(h), in accordance with WAC 173-303-680, and shall consider, but not be limited to, the following miscellaneous unit system installation documentation:

i. Field installation report with date of installation;

ii. Approved welding procedures;

iii. Welder qualifications and certification;

iv. Hydro-test reports, as applicable, in accordance with the American Society of Mechanical Engineers Boiler and Pressure Vessel Code, Section VIII, Division 1, American Petroleum Institute (API) Standard 620, or Standard 650 as applicable;

v. Tester credentials;

vi. Field inspector credentials;

vii. Field inspector reports;

viii. Field waiver reports; and

ix. Non-compliance reports and corrective action (including field waiver reports) and repair reports.

III.10.G.4 Integrity Assessments [WAC 173-303-340 and WAC 173-303-640, in accordance with WAC 173-303-680(2) and (3)].

III.10.G.4.a. The Permittees shall ensure periodic integrity assessments are conducted on the Pretreatment Plant Miscellaneous Unit Systems listed in Permit Table III.10.G.A, as approved/modified pursuant to Permit Condition III.10.G.10., over the term of this Permit in accordance with WAC173-303-680(2) and (3) as specified in WAC 173-303-640(3)(b), following the description of the integrity assessment program and schedule in Attachment 51, Chapter 6.0 of this Permit, as approved pursuant to Permit Conditions III.10.G.10.e.i. and III.10.C.5.c. Results of the integrity assessments shall be included in the WTP Unit operating record until ten (10) years after post-closure, or corrective action is complete and certified, whichever is later.

III.10.G.4.b. The Permittees shall address problems detected during Pretreatment Plant Miscellaneous Unit Systems integrity assessments specified in Permit Condition III.10.G.4.a. following the integrity assessment program in Attachment 51, Chapter 6.0 of this Permit, as approved pursuant to Permit Conditions III.10.G.10.e.i. and III.10.C.5.c.

III.10.G.4.c. The Permittees must immediately and safely remove from service any Pretreatment Plant Miscellaneous Unit System or secondary containment system which through an integrity assessment is found to be "unfit for use" as defined in WAC 173-303-040, following Permit Condition III.10.G.5.j.i. through iv., and vi. The affected Pretreatment Plant Miscellaneous Unit or secondary containment system must be either repaired or closed in accordance with Permit Condition III.10.G.5.j.v. [WAC 173-303-640(7)(e) and (f) and WAC 173-303-640(8), in accordance with WAC 173-303-680(3)].

III.10.G.5 Miscellaneous Unit Management Practices

III.10.G.5.a. No dangerous and/or mixed waste shall be managed in the Pretreatment Plant Miscellaneous Unit Systems unless the operating conditions, specified under Permit Condition III.10.G.5, are complied with.

III.10.G.5.b. The Permittees shall install and test all process and leak detection system monitoring/instrumentation, as specified in Permit Table III.10.G.C, as approved/modified pursuant to Permit Condition III.10.G.10, in accordance with Attachment 51, ~~Appendix~~ Appendices 8.1, 8.2, and 8.14 of this Permit, as approved pursuant to Permit Conditions~~s III.10.G.10.b.vii., III.10.G.10.b.xiii. and~~ III.10.G.10.d.x.

III.10.G.5.c. The Permittees shall not place dangerous and/or mixed waste, treatment reagents, or other materials in the Pretreatment Plant Miscellaneous Unit Systems if these substances could cause the systems to rupture, leak, corrode, or otherwise fail [WAC 173-303-640(5)(a), in accordance with WAC 173-303-680(2)].

III.10.G.5.d. The Permittees shall operate the Pretreatment Plant Miscellaneous Unit Systems to prevent spills and overflows using the description of controls and practices, as required under WAC 173-303-640(5)(b), described in Permit Condition III.10.C.5, and Attachment 51, Appendix 8.15 of this Permit, as approved pursuant to Permit Condition III.10.G.10.e.iv. [WAC 173-303-640(5)(b), in accordance with WAC 173-303-680(2) and (3) and WAC 173-303-806(4)(c)(ix)].

III.10.G.5.e. For routinely non-accessible Pretreatment Plant Miscellaneous Unit Systems, as specified in Attachment 51, Chapter 4.0 of this Permit, as updated pursuant to Permit Condition III.10.G.10.e.vi., the Permittees shall mark all routinely non-accessible Pretreatment Plant Miscellaneous Unit System access points with labels or signs to identify the waste contained in the units. The label, or sign, must be legible at a distance of at least fifty (50) feet and must bear a legend which identifies the waste in a manner which adequately warns employees, emergency response personnel, and the public of the major risk(s) associated with the waste being stored or treated in the miscellaneous unit system(s). For the purposes

of this Permit condition, "routinely non-accessible" means personnel are unable to enter these areas while waste is being managed in them [WAC 173-303-640(5)(d), in accordance with WAC 173-303-680(2)].

III.10.G.5.f. For all Pretreatment Plant Miscellaneous Unit Systems not addressed in Permit Condition III.10.G.5.e, the Permittees shall mark all these miscellaneous unit systems holding dangerous and/or mixed waste with labels or signs to identify the waste contained in the unit. The labels, or sign, must be legible at a distance of at least fifty (50) feet, and must bear a legend which identifies the waste in a manner which adequately warns employees, emergency response personnel, and the public of the major risk(s) associated with the waste being stored or treated in the miscellaneous unit system(s) [WAC 173-303-640(5)(d), in accordance with WAC 173-303-680(2)].

III.10.G.5.g. The Permittees shall ensure that the secondary containment systems for Pretreatment Plant Miscellaneous Unit Systems listed in Permit Tables III.10.G.A and III.10.G.B, as approved/modified pursuant to Permit Condition III.10.G.10, are free of cracks or gaps to prevent any migration of dangerous and/or mixed waste or accumulated liquid out of the system to the soil, ground water, or surface water at any time waste is in the Pretreatment Plant Miscellaneous Units System. Any indication that a crack or gap may exist in the containment systems shall be investigated and repaired in accordance with Attachment 51, Appendix 8.15 of this Permit, as approved pursuant to Permit Condition III.10.G.10.e.v. [WAC 173-303–640(4)(b)(i), WAC 173-303–640(4)(e)(i)(C), and WAC 173-303-640(6) in accordance with WAC 173-303-680(2) and (3), WAC 173-303-806(4)(i)(i)(B), and WAC 173-303-320].

III.10.G.5.i. An impermeable coating, as specified in Attachment 51, Appendices 8.4, 8.5,8.7, 8.9, 8.11, and 8.12 of this Permit, as approved pursuant to Permit Condition III.10.G.10.b.v. of this Permit, shall be maintained for all concrete containment systems and concrete portions of containment systems for each Pretreatment Plant Miscellaneous Unit System listed in Permit Tables III.10.G.A and III.10.G.B, as approved/modified pursuant to Permit Condition III.10.G.10 [concrete containment systems that do not have a liner pursuant to WAC-173-303-640(4)(e)(i), in accordance with WAC 173-303-680(2), and have construction joints, shall meet the requirements of WAC 173-303-640(4)(e)(ii)(C), in accordance with WAC 173-303-680(2)]. The coating shall prevent migration of any dangerous and mixed waste into the concrete. All coatings shall meet the following performance standards:

i. The coating must seal the containment surface such that no cracks, seams, or other avenues through which liquid could migrate are present;

ii. The coating must be of adequate thickness and strength to withstand the normal operation of equipment and personnel within the given area such that degradation or physical damage to the coating or lining can be identified and remedied before dangerous and mixed waste could migrate from the system; and

iii. The coating must be compatible with the dangerous and mixed waste, treatment reagents, or other materials managed in the containment system [WAC 173-303-640(4)(e)(ii)(D), in accordance with WAC 173-303-680(2) and (3) and WAC 173-303-806(4)(i)(i)(A)].

III.10.G.5.j. The Permittees shall inspect all secondary containment systems for the Pretreatment Plant Miscellaneous Unit Systems listed in Permit Tables III.10.G.A and III.10.G.B., as approved/modified pursuant to Permit Condition III.10.G.10., in accordance with the Inspection Schedule specified in Attachment 51, Chapter 6.0 of this Permit, as approved pursuant to Permit Conditions III.10.G.10.e.i. and III.10.C.5.c., and take the following actions if a leak or spill of dangerous and/or mixed waste is detected in these containment

systems [WAC 173-303-640(5)(c) and WAC 173-303-640(6), in accordance with WAC 173-303-680(2) and (3), WAC 173-303-320, and WAC 173-303-806(4)(i)(i)(B)]:

i. Immediately and safely stop the flow of dangerous and/or mixed waste into the miscellaneous unit system or secondary containment system;

ii. Determine the source of the dangerous and/or mixed waste;

iii. Remove the waste from the containment area in accordance with WAC 173-303-680(2) and (3), as specified in WAC 173-303-640(7)(b). The dangerous and/or mixed waste removed from containment areas of miscellaneous unit systems shall be, as a minimum, managed as dangerous and/or mixed waste;

iv. If the cause of the release was a spill that has not damaged the integrity of the miscellaneous unit system, the Permittees may return the miscellaneous unit system to service in accordance with WAC 173-303-680(2) and (3), as specified in WAC 173-303-640(7)(e)(ii). In such a case, the Permittees shall take action to ensure the incident that caused liquid to enter the containment system will not reoccur [WAC 173-303-320(3)];

v. If the source of the dangerous and/or mixed waste is determined to be a leak from ~~a~~ the primary Pretreatment Plant Miscellaneous Unit System into the secondary containment system, or the system is unfit for use as determined through an integrity assessment or other inspection, the Permittees must comply with the requirements of WAC 173-303-640(7), and take the following actions:

A Close the miscellaneous unit following procedures in WAC 173-303-640(7)(e)(i) and in accordance with WAC 173-303-680, and Attachment 51, Chapter 11.0 of this Permit, as approved pursuant to Permit Condition III.10.C.8; or

B. Repair and re-certify (in accordance with WAC 173-303-810(13)(a), as modified pursuant to Permit Condition III.10.G.1.d.) the Pretreatment Plant Miscellaneous Unit System in accordance with Attachment 51, Appendix 8.15 of this Permit, as approved pursuant to Permit Condition III.10.G.10.e.v. before the Pretreatment Plant Miscellaneous Unit System is placed back into service [WAC 173-303-640(7)(e)(iii) and WAC 173-303-640(7)(f), in accordance with WAC 173-303-680].

vi. The Permittees shall document, in the operating record, actions/procedures taken to comply with i. through v. above, as specified in WAC 173-303-640(6)(d) and in accordance with WAC 173-303-680(2) and (3).

vii. In accordance with WAC 173-303-680(2) and (3), the Permittees shall notify and report releases to the environment to Ecology as specified in WAC 173-303-640(7)(d).

III.10.G.5.k. If liquids (e.g., Dangerous and/or mixed waste leaks and spills, precipitation, fire water, liquids from damaged or broken pipes) cannot be removed from the secondary containment system within twenty-four (24) hours, Ecology will be verbally notified within twenty-four (24) hours of discovery. The notification shall provide the information in A., B., and C. listed below. The Permittees shall provide Ecology with a written demonstration, within seven (7) business days, identifying at a minimum [WAC 173-303-640(4)(c)(iv) and WAC 173-303-640(7)(b)(ii), in accordance with WAC 173-303-680(3) and WAC 173-303-806(4)(i)(i)(B)]:

A. Reasons for delayed removal;

B. Measures implemented to ensure continued protection of human health and the environment; and

C. Current actions being taken to remove liquids from secondary containment.

III.10.G.5.l. The Permittees shall operate the Pretreatment Plant Miscellaneous Unit Systems in accordance with Attachment 51, Chapter 4.0 as updated pursuant to Permit Condition III.10.G.10.e.vi. and Appendix 8.15 of this Permit, as approved pursuant to Permit Condition III.10.G.10.e., and the following:

i. The Permittees shall operate the Pretreatment Plant Miscellaneous Unit Systems in order to maintain the systems and process parameters listed in Permit Table III.10.G.C. as approved/modified pursuant to Permit Condition III. 10.G.10., within the operating trips and operating ranges specified in Permit Table III.10.G.C., and consistent with assumptions and basis which are reflected in Attachment 51, Appendix 6.3.1, as approved pursuant to Permit Condition III.10.C.11.b. [WAC 173-303-815(2)(b)(ii) and WAC 173-303-680(2) and (3)]. For the purposes of this Permit Condition, Attachment 51, Appendix 6.3.1. shall be superceded by Appendix 6.4.1. upon its approval pursuant to either Permit Conditions III.10.C.11.c. or III.10.C.11.d.

ii. The Permittees shall calibrate/function test the instruments listed in Permit Table III.10.G.C., in accordance with Attachment 51, Appendix 8.15, as approved pursuant to Permit Condition III.10.G.10.e.xii.

III.10.G.5.m. For any portion of the Pretreatment Plant Miscellaneous Unit Systems which have the potential for formation and accumulation of hydrogen gases, the Permittees shall operate the portion to maintain hydrogen levels below the lower explosive limit [WAC 173-303-815(2)(b)(ii)].

III.10.G.5.n. For each miscellaneous unit holding dangerous waste which are acutely or chronically toxic by inhalation, the Permittees shall operate the system to prevent escape of vapors, fumes, or other emissions into the air [WAC 173-303-806(4)(i)(i)(B) and WAC 173-303-640(5)(e), in accordance with WAC 173-303-680].

III.10.G.6 Air Emissions

III.10.G.6.a. Treatment effectiveness, feed-rates, and operating rates for dangerous and mixed waste systems and sub-systems contained in the Pretreatment Plant (as specified in Permit Tables III.10.E.A, III.10.F.A, and III.10.G.A, as approved/modified pursuant to Permit Conditions III.10.E.9., III.10.F.5., III.10.G.10., respectively) shall be as specified in Permit Sections III.10.E, III.10.F, and III.10.G, and consistent with the assumptions and basis reflected in Attachment 51, Appendix 6.3.1 of this Permit, as approved pursuant to Permit Condition III.10.C.11.b. For the purposes of this permit condition, Attachment 51, Appendix 6.3.1 shall be superceded by Appendix 6.4.1, upon its approval, pursuant to either Permit Condition III.10.C.11.c. or III.10.C.11.d. [WAC 173-303-680(2) and (3), and WAC 173-303-815(2)(b)(ii)].

III.10.G.6.b. Compliance with Permit Condition III.10.G.6.a. of this Permit shall be regarded as operating within the emission limits specified in Permit Table III.10.G.D., as approved pursuant to Permit Conditions III.10.C.11.b., III.10.C.11.c., or III.10.C.11.d. of this Permit.

III.10.G.6.c. All air pollution control devices and capture systems in the Pretreatment Plant Miscellaneous Unit Systems shall be maintained and operated at all times in a manner so as to minimize the emissions of air contaminants and to minimize process upsets. Procedures for ensuring that the above equipment is properly operated and maintained so as to minimize the emission of air contaminants and process upsets shall be established.

III.10.G.6.d. The Permittees shall ensure that for all dangerous and/or mixed waste areas, systems, and units contained in the Pretreatment Plant (as specified in Permit Tables III.10.E.A, III.10.F.A, and III.10.G.A, as approved pursuant to Permit Conditions III.10.E.9.e.xii., III.10.F.7.d.iv., and III.10.G.10.e.ix., respectively), the Pretreatment Vessel Vent Process System specified in Permit Table III.10.G.A.i shall be in operation prior to waste being introduced into these dangerous and/or mixed waste areas, systems, and units contained in the Pretreatment Building. At any time the Pretreatment Vessel Vent Process System ceases to operate or produces insufficient vacuum to recover emissions from the areas, systems, or units, the Permittees shall not commence new treatment activities within the dangerous and mixed waste areas, systems, or units contained in the Pretreatment Building, and take measures to minimize evolution of emissions from on-going treatment, and shall not receive new dangerous and/or mixed waste shipments into the Pretreatment Building. The Permittees shall not re-commence new treatment activities until the Pretreatment Vessel Vent Process System is operational and producing sufficient vacuum to recover emissions.

III.10.G.7 Inspections [WAC 173-303-680(3)]

III.10.G.7.a. The Permittees shall inspect the Pretreatment Plant Miscellaneous Unit Systems in accordance with the Inspection Schedules in Attachment 51, Chapter 6.0 of this Permit, as modified in accordance with Permit Condition III.10.C.5.c.

III.10.G.7.b. The inspection data for Pretreatment Plant Miscellaneous Unit Systems shall be recorded, and the records shall be placed in the WTP Unit operating record for the Pretreatment Plant Miscellaneous Unit Systems, in accordance with Permit Condition III.10.C.4.

III.10.G.8 Recordkeeping

The Permittees shall record and maintain in the WTP Unit operating record for the Pretreatment Plant Miscellaneous Unit Systems, all monitoring, calibration, maintenance, test data, and inspection data compiled under the conditions of this Permit, in accordance with Permit Conditions III.10.C.4 and III.10.C.5.

III.10.G.9 Closure

The Permittees shall close the Pretreatment Plant Miscellaneous Unit Systems in accordance with Attachment 51, Chapter 11.0, as approved pursuant to Permit Condition III.10.C.8.

III.10.G.10 Compliance Schedule

III.10.G.10.a. All information identified for submittal to Ecology in a. through e. of this compliance schedule must be signed and certified in accordance with requirements in WAC 173-303-810(12), as modified in accordance with Permit Condition III.10.G.1.d. [WAC 173-303-806(4)].

III.10.G.10.b. The Permittees shall submit to Ecology, pursuant to Permit Condition III.10.C.9.f., prior to construction of each secondary containment and leak detection system for the Pretreatment Plant Miscellaneous Unit Systems (per level) as identified in Permit Tables III.10.G.A and III.10.G.B, engineering information as specified below, for incorporation into Attachment 51, Appendices 8.2, 8.4, 8.5, 8.7, 8.8, 8.9, 8.11, and 8.12 of this Permit. At a minimum, engineering information specified below will show the following as described in WAC 173-303-640, in accordance with WAC 173-303-680 (the information specified below will include dimensioned engineering drawings and information on sumps and floor drains):

i. IQRPE Reports (specific to foundation, secondary containment, and leak detection system) shall include review of design drawings, calculations, and other information on which the certification report is based and shall include as applicable, but not limited to, review of such information described below. Information (drawings,

specifications, etc.) already included in Attachment 51, Appendix 8.0 of this Permit may be included in the report by reference and should include drawing and document numbers. IQRPE Reports shall be consistent with the information separately provided in ii. through ix. below [WAC 173-303-640(3)(a), in accordance with WAC 173-303-680 and WAC 173-303-806(4)(i)(i)];

ii. Design drawings (General Arrangement Drawings, in plan and cross sections) and specifications for the foundation, secondary containment, including, liner installation details, and leak detection methodology [Note: leak detection systems for areas where daily, direct, or remote visual inspection is not feasible, shall be continuous in accordance with WAC 173-303-640(4)(e)(iii)(C)]. These items should show the dimensions, volume calculations, and location of the secondary containment system, and should include items such as floor/pipe slopes to sumps, tanks, floor drains [WAC 173-303-640(4)(b) through (f) and WAC 173-303-640(3)(a), in accordance with WAC 173-303-680 and WAC 173-303-806(4)(i)(i)];

iii. The Permittees shall provide the design criteria (references to codes and standards, load definitions, and load combinations, materials of construction, and analysis/design methodology) and typical design details for the support of the secondary containment system. This information shall demonstrate the foundation will be capable of providing support to the secondary containment system, resistance to pressure gradients above and below the system, and capable of preventing failure due to settlement, compression, or uplift [WAC 173-303-640(4)(c)(ii), in accordance with WAC 173-303-680(2) and WAC 173-303-806(4)(i)(i)(B)];

iv. A description of materials and equipment used to provide corrosion protection for external metal components in contact with soil, including factors affecting the potential for corrosion [WAC 173-303-640(3)(a)(iii)(B), in accordance with WAC 173-303-680 and WAC 173-303-806(4)(i)(i)(A) through (B)];

v. Secondary containment/foundation and leak detection systems materials selection documentation (including, but not limited to, concrete coatings and water stops, and liner materials), as applicable [WAC 173-303-806(4)(i)(i)(A) through (B)];

vi. Detailed description of how the secondary containment for each miscellaneous unit system will be installed in compliance with WAC 173-303-640(3)(c), in accordance with WAC 173-303-680 and WAC 173-303-806(4)(i)(i)(A) through (B);

vii. Submit Permit Table III.10.G.B. completed to provide for all secondary containment sumps and floor drains, the information as specified in each column heading, consistent with information to be provided in i. through vi. above;

viii. Documentation that secondary containment and leak detection systems will not accumulate hydrogen gas levels above the lower explosive limit for incorporation into the Administrative Record [WAC 173-303-680, WAC 173-303-806(4)(i)(i)(A), and WAC 173-303-806(4)(i)(v)];

ix. A detailed description of how miscellaneous unit design provides access for conducting future miscellaneous unit integrity assessments [WAC 173-303-640(3)(b) and WAC 173-303-806(4)(i)(i)(B)].

III.10.G.10.c. The Permittees shall submit to Ecology, pursuant to Permit Condition III.10.C.9.f., prior to installation of each Pretreatment Plant Miscellaneous Unit System as identified in Permit Tables III.10.G.A and III.10.G.B, engineering information as specified below, for incorporation into Attachment 51, Appendix 8.1 through 8.14 of this Permit. At a minimum, engineering information specified below will show the following as required

pursuant to WAC 173-303-640 and in accordance with WAC 173-303-680 (the information specified below will include dimensioned engineering drawings):

i. IQRPE Reports (specific to miscellaneous unit) shall include review of design drawings, calculations, and other information on which the certification report is based and shall include as applicable, but not limited to, review of such information described below. Information (drawings, specifications, etc.) already included in Attachment 51, Appendix 8.0 of this Permit may be included in the report by reference and should include drawing and document numbers. The IQRPE Reports shall be consistent with the information separately provided in ii. through xi. below and the IQRPE Report specified in Permit Condition III.10.G.10.b.i. [WAC 173-303-640(3)(a), in accordance with WAC 173-303-680(2) and WAC 173-303-806(4)(i)(i)];

ii. Design drawings (General Arrangement Drawings in plan and cross sections, Process Flow Diagrams, Piping and Instrumentation Diagrams [including pressure control systems], and Mechanical Drawings) and specifications, and other information specific to miscellaneous units (to show location and physical attributes of each miscellaneous unit), [WAC 173-303-640(3)(a), in accordance with WAC 173-303-680(2) and WAC 173-303-806(4)(i)(i)];

iii. Miscellaneous unit design criteria (references to codes and standards, load definitions, and load combinations, materials of construction, and analysis/design methodology) and typical design details for the support of the miscellaneous unit(s). Structural support calculations specific to off-specification, non-standard, and field fabricated miscellaneous units shall be submitted for incorporation into the Administrative Record [WAC 173-303-640(3)(a), in accordance with WAC 173-303-680(2) and WAC 173-303-806(4)(i)(i)(B)];

iv. A description of materials and equipment used to provide corrosion protection for external metal components in contact with water, including factors affecting the potential for corrosion [WAC 173-303-640(3)(a)(iii)(B), in accordance with WAC 173-303-680(2) and WAC 173-303-806(4)(i)(i)(A) through (B)];

v. Miscellaneous unit materials selection documentation (e.g., physical and chemical tolerances) [WAC 173-303-640(3)(a), in accordance with WAC 173-303-680(2) and WAC 173-303-806(4)(i)(i)(A)];

vi. Miscellaneous unit vendor information (including, but not limited to, required performance warranties, as available), consistent with information submitted under ii. above, shall be submitted for incorporation into the Administrative Record [WAC 173-303-640(3)(a), in accordance with WAC 173-303-680(2), WAC 173-303-806(4)(i)(i)(A) through (B), and WAC 173-303-806(4)(i)(v)];

vii. System Description (process) related to miscellaneous units shall be submitted for incorporation into the Administrative Record [WAC 173-303-680, WAC 173-303-806(4)(i)(i)(A) through (B), and WAC 173-303-806(4)(i)(v)].

viii. Mass and energy balance for normal projected operating conditions used in developing the Piping and Instrumentation Diagrams and the Process Flow Diagrams, including assumptions and formulas used to complete the mass and energy balance, so that they can be independently verified for incorporation into the Administrative Record [WAC 173-303-680(2), WAC 173-303-806(4)(i)(i)(B), and WAC 173-303-806(4)(i)(v)];

ix. A detailed description of how the miscellaneous unit will be installed in compliance with WAC 173-303-640(3)(c), (d), and (e), in accordance with WAC 173-303-680 and WAC 173-303-806(4)(i)(i)(B);

x. Documentation that miscellaneous units are designed to prevent the accumulation of hydrogen gas levels above the lower explosive limit for incorporation into the Administrative Record [WAC 173-303-680, WAC 173-303-806(4)(i)(i)(A), and WAC 173-303-806(4)(i)(v)];

xi. Documentation that miscellaneous units are designed to prevent escape of vapors and emissions of acutely or chronically toxic (upon inhalation) EHW, for incorporation into the Administrative Record [WAC 173-303-640(5)(e), in accordance with WAC 173-303-680(2) and WAC 173-303-806(4)(i)(i)(B)];

III.10.G.10.d. The Permittees shall submit to Ecology, pursuant to Permit Condition III.10.C.9.f., prior to installation of equipment as identified in Permit Tables III.10.G.A and III.10.G.B, not addressed in Permit Condition III.10.G.10.c., engineering information as specified below for incorporation into Attachment 51, Appendices 8.1through 8.14 of this Permit. At a minimum, engineering information specified below will show the following as required pursuant to WAC 173-303-640, in accordance with WAC 173-303-680 (the information specified below will include dimensioned engineering drawings):

i. IQRPE Reports (specific to equipment) shall include a review of design drawings, calculations, and other information as applicable, on which the certification report is based. The reports shall include, but not be limited to, review of such information described below. Information (drawings, specifications, etc.) already included in Attachment 51, Appendix 8.0 of this Permit may be included in the report by reference and should include drawing and document numbers. The IQRPE Reports shall be consistent with the information provided separately in ~~ii. xi.~~ ii. through xiii. below and the IQRPE Reports specified in Permit Conditions III.10.G.10.b. and III.10.G.10.c. [WAC 173-303-640(3)(a), in accordance with WAC 173-303-680(2) and WAC 173-303-806(4)(i)(i)(A) through (B)];

ii. Design drawings (Process Flow Diagrams, Piping and Instrumentation Diagrams [including pressure control systems]) specifications and other information specific to equipment (these drawings should include all equipment such as pipe, valves, fittings, pumps, instruments, etc) [WAC 173-303-640(3)(a), in accordance with WAC 173-303-680(2) and WAC 173-303-806(4)(i)(i)(A) through (B)];

iii. The Permittees shall provide the design criteria (references to codes and standards, load definitions, and load combinations, materials of construction, and analysis/design methodology) and typical design details for the support of the equipment [WAC 173-303-640(3)(a) and WAC 173-303-640(3)(f), in accordance with WAC 173-303-680 and WAC 173-303-806(4)(i)(i)(B)];

iv. A description of materials and equipment used to provide corrosion protection for external metal components in contact with soil and water, including factors affecting the potential for corrosion [WAC 173-303-640(3)(a)(iii)(B), in accordance with WAC 173-303-680(2) and WAC 173-303-806(4)(i)(i)(A)];

v. Materials selection documentation for equipment (e.g., physical and chemical tolerances) [WAC 173-303-640(3)(a), in accordance with WAC 173-303-680(2) and WAC 173-303-806(4)(i)(i)(A)];

vi. Vendor information (including, but not limited to, required performance warranties, as available), consistent with information submitted under ii. above, for equipment shall

be submitted for incorporation into the Administrative Record [WAC 173-303-640(3)(a), in accordance with WAC 173-303-680(2), WAC 173-303-806(4)(i)(i)(A) through (B), and WAC 173-303-806(4)(i)(iv)];

vii. Miscellaneous unit, ~~and~~ equipment, and leak detection system instrument control logic narrative description (e.g., software functional specifications, descriptions of fail-safe conditions, etc.) [WAC 173-303-680(2), WAC 173-303-806(4)(i)(i)(B), and WAC 173-303-806(4)(i)(v)].

viii. System Descriptions (process) related to equipment and system descriptions related to leak detection systems, (including instrument control logic and narrative descriptions), for incorporation into the Administrative Record [WAC 173-303-680, WAC 173-303-806(4)(i)(i)(A) through (B), and WAC 173-303-806(4)(i)(v)];

ix. A detailed description of how the equipment will be installed and tested [WAC 173-303-640(3)(c) through (e) and WAC 173-303-640(4)(b) and (c), in accordance with WAC 173-303-680 and WAC 173-303-806(4)(i)(i)(B)];

x. For process monitoring, ~~and~~ control, and leak detection system instrumentation for the WTP Unit Miscellaneous Unit Systems as identified in Permit Table III.10.G.C, a detailed description of how the process monitoring, ~~and~~ control, and leak detection system instrumentation will be installed and tested [WAC 173-303-640(3)(c) through (e), WAC 173-303-640(4)(b) and (c), WAC 173-303-806(4)(c)(vi), and WAC 173-303-806(4)(i)(i)(B)];

xi. Mass and energy balance for projected normal operating conditions, used in developing the Piping and Instrumentation Diagrams and Process Flow Diagrams, including assumptions and formulas used to complete the mass and energy balance, so that they can be independently verified, for incorporation into the Administrative Record [WAC 173-303-680(2), WAC 173-303-806(4)(i)(i)(B), and WAC 173-303-806(4)(i)(v)];

xii. Documentation that miscellaneous units are designed to prevent the accumulation of hydrogen gas levels above the lower explosive limit for incorporation into the Administrative Record [WAC 173-303-680, WAC 173-303-806(4)(i)(i)(A), and WAC 173-303-806(4)(i)(v)].

xiii. Leak detection system documentation (e.g. vendor information, etc.) consistent with information submitted under Permit Condition III.10.G.10.c.ii. and Permit Conditions III.10.G.10.d.ii., vii., viii., and x. above, shall be submitted for incorporation into the Administrative Record.

III.10.G.10.e. Prior to initial receipt of dangerous and/or mixed waste in the WTP Unit, the Permittees shall submit to Ecology, pursuant to Permit Condition III.10.C.9.f., the following as specified below for incorporation into Attachment 51, Appendix 8.15, except Permit Condition III.10.G.10.e.i., which will be incorporated into Attachment 51, Chapter 6.0, of this Permit. All information provided under this permit condition must be consistent with information provided pursuant to Permit Conditions III.10.G.10.b., c., d., and e., III.10.C.3.e., and III.10.C.11.b., as approved by Ecology.

i. Integrity assessment program and schedule for the Pretreatment Plant Miscellaneous Unit Systems shall address the conducting of periodic integrity assessments on the Pretreatment Plant Miscellaneous Unit Systems over the life of the systems, as specified in Permit Condition III.10.G.10.b.ix. and WAC 173-303-640(3)(b), in accordance with WAC 173-303-680, and descriptions of procedures for addressing problems detected during integrity assessments. The schedule must be based on past

integrity assessments, age of the system, materials of construction, characteristics of the waste, and any other relevant factors [WAC 173-303-640(3)(b), in accordance with WAC 173-303-680 and WAC 173-303-806(4)(i)(i)(B)];

ii. Detailed plans and descriptions, demonstrating the leak detection system is operated so that it will detect the failure of either the primary or secondary containment structure or the presence of any release of dangerous and/or mixed waste or accumulated liquid in the secondary containment system within twenty-four (24) hours WAC 173-303-640(4)(c)(iii). Detection of a leak of at least 0.1 gallons per hour within twenty-four (24) hours is defined as being able to detect a leak within twenty-four (24) hours. Any exceptions to this criteria must be approved by Ecology in accordance with WAC 173-303-680, WAC 173-303-640(4)(c)(iii), and WAC 173-303-806(4)(i)(i)(B)];

iii. Detailed operational plans and descriptions, demonstrating that spilled or leaked waste and accumulated liquids can be removed from the secondary containment system within twenty-four (24) hours [WAC 173-303-806(4)(i)(i)(B)];

iv. Descriptions of operational procedures demonstrating appropriate controls and practices are in place to prevent spills and overflows from the Pretreatment Plant Miscellaneous Unit Systems, or containment systems, in compliance with WAC 173-303-640(5)(b)(i) through (iii), in accordance with WAC 173-303-680 [WAC 173-303-806(4)(i)(i)(B)];

v. Description of procedures for investigation and repair of the Pretreatment Plant Miscellaneous Unit Systems [WAC 173-303–640(6) and WAC 173-303-640(7)(e) and (f), in accordance with WAC 173-303-680, WAC 173-303-320, WAC 173-303-806(4)(a)(v), and WAC 173-303-806(4)(i)(i)(B)];

vi. Updated Chapter 4.0, Narrative Descriptions, Tables and Figures as identified in Permit Tables III.10.G.A and III.10.G.B., as modified pursuant to Permit Condition III.10.G.10.e.ix., and updated to identify routinely non-accessible Pretreatment Plant Miscellaneous Unit Systems [WAC 173-303-680 and WAC 173-303-806(4)(i)(i)(A) through (B)];

vii. Descriptions of procedures for management of ignitable and reactive, and incompatible dangerous and/or mixed waste, in accordance with WAC 173-303-640(9) and (10), in accordance with WAC 173-303-680 and WAC 173-303-806(4)(i)(i)(B).

viii. A description of the tracking system used to track dangerous and/or mixed waste generated throughout the Pretreatment Plant Miscellaneous Unit Systems, pursuant to WAC 173-303-380.

ix. Permit Table III.10.G.A, amended as follows [WAC 173-303-680 and WAC 173-303-806(4)(i)(i)(A) through (B)]:

A. Under column 1, update and complete list of dangerous and mixed waste Pretreatment Plant Miscellaneous Unit Systems, including plant items which comprise each system (listed by item number).

B. Under column 2, update and complete system designations.

C. Under column 3, replace the ‘Reserved’ with the Attachment 51, Appendix 8.0 subsections specific to miscellaneous unit systems as listed in column 1.

D. Under column 4, update and complete list of narrative description tables and

figures.

E. Under column 5, update and complete maximum capacity for each miscellaneous unit, as applicable.

F. Permit Table III.10.G.A.i., amended as follows:

1. Under column 1, update and complete list of plant items that comprise the Pretreatment Plant Vessel Vent System (listed by item number).

2. Under column 2, update and complete designations.

3. Under column 3, replace the 'Reserved' with the Attachment 51, Appendix 8.0, subsections (e.g., 9.1, 9.2, etc.) specific to systems as listed in column 1.

4. Under column 4, update and complete list of narrative description tables and figures.

x. Permit Table III.10.G.C. shall be completed for Pretreatment Plant Miscellaneous Unit System process and leak detection system monitors and instruments (to include, but not be limited to: instruments and monitors measuring and/or controlling flow, pressure, temperature, density, pH, level, humidity, and emissions) to provide the information as specified in each column heading. Process and leak detection system monitors and instruments for critical systems as specified in Attachment 51, Appendix 2.0 and as updated pursuant to Permit Condition III.10.C.9.b.and for operating parameters as required to comply with Permit Condition III.10.C.3.e.iii. shall be addressed. Process monitors and instruments for non-waste management operations (e.g., utilities, raw chemical storage, non-contact cooling waters, etc.) are excluded from this permit condition [WAC 173-303-680, WAC 173-303-806(4)(i)(i)(A) through (B), and WAC 173-303-806(4)(i)(v)];

xi. Supporting documentation for operating trips and expected operating range as specified in Permit Table III.10.G.C., as approved pursuant to Permit Condition III.10.G.10.e.x. [WAC 173-303-680, WAC 173-303-806(4)(i)(i)(B), WAC 173-303-806(4)(i)(iv), and WAC 173-303-806(4)(i)(v)];

xii. Documentation of process and leak detection instruments and monitors (as listed in Permit Table III.10.G.C.) for the Pretreatment Plant Miscellaneous Unit Systems to include, but not be limited to, the following [WAC 173-303-680, WAC 173-303-806(4)(i)(i)(B), and WAC 173-303-806(4)(i)(v)]:

A. Procurement Specifications

B. Location used

C. Range, precision, and accuracy

D. Detailed descriptions of calibration/functionality test procedures (e.g., method number [ASTM]) or provide a copy of manufacturer's recommended calibration procedures.

E. Calibration/functionality test, inspection, and routine maintenance schedules and checklists, including justification for calibration, inspection and maintenance frequencies, criteria for identifying instruments found to be significantly out of calibration, and corrective action to be taken for instruments found to be significantly out of calibration (e.g., increasing frequency of calibration, instrument replacement, etc.)

F. Equipment instrument control logic narrative description (e.g., software functional specifications, descriptions of fail-safe conditions, etc.) [WAC 173-303-680(2), WAC 173-303-806(4)(i)(i)(B), and WAC 173-303-806(4)(i)(v)].

Table III.10.G.A – Pretreatment Plant Miscellaneous Unit Systems

Miscellaneous Unit System Description[a]	Miscellaneous Unit System Designation	Description Drawings	Narrative Description, Tables, & Figures	Maximum Capacity (gallons)
Waste Feed Evaporation Process System (Comprised of the following miscellaneous units and equipment: Evaporator Feed Vessels V11001A-B[b], Waste Feed Evaporator Separator Vessels V11002A-B, Evaporator Process Condensate Pot V11005[b], Reboilers, Primary Condensers, Intercondensers, After condensers, Demisters, and Pumps and associated equipment)	FEP	RESERVED	Section 4.1.2.2.; Figure 4A-1, 4A-2, and 4A-6 of Attachment 51, Chapter 4 of this Permit.	V11002A = 21,240 V11002B = 21,240
Cesium Nitric Acid Recovery Process System (Comprised of the following miscellaneous units and equipment: Cs Evaporator (ID RESERVED), Cs Concentrate Reboiler, Eluant Contingency Storage Vessel V13073[b] , Recovered Nitric Acid Vessel V13028[b], Cesium Concentrate Lute Pot V13030[b] , Cs Rectifier Column, Rectifier Overhead Primary Condenser, After (Secondary) condenser, and Ejectors and associated equipment)	CNP	RESERVED	Section 4.1.2.6.; Figure 4A-1, 4A-2, and 4A-10 of Attachment 51, Chapter 4 of this Permit	Cs Evaporator = RESERVED
Technetium Eluant Recovery Process System (Comprised of the following miscellaneous units and equipment: Technetium Eluant Recovery Evaporator V43069, Tc Concentrate Reboiler, Recovered Tc Eluant Vessel V43071[b] , Tc Concentrate Lute Pot V43072[b] , Tc Rectifier Column, Rectifier Overhead Condenser, Aftercondenser, Vacuum Ejectors and associated equipment)	TEP	RESERVED	Section 4.1.2.9.; Figure 4A-1, 4A-2, and 4A-13 of Attachment 51, Chapter 4 of this Permit	V43069 = 4,300
Treated LAW Evaporation Process System (Comprised of the following miscellaneous units and equipment: LAW Evaporator Separator Vessel V41011, Process Condensate Hold Vessel V41013[b], Plant Wash Vessels A-B V45009A-B[b] , Reboiler, Primary Condenser, Intercondenser, Aftercondenser, Demister, Pumps and associated equipment)	TLP	RESERVED	Section 4.1.2.11; Figure 4A-1, 4A-2, and 4A-16 of Attachment 51, Chapter 4 of this Permit	V41011 = 21,240

[a] The Pretreatment Vessel Vent Process System specified in Permit Table III.10.G.A.i is shared between the Pretreatment Plant Miscellaneous Unit Systems. Any references in this Permit to the individual Pretreatment Plant Miscellaneous Unit Systems are also a reference to the Pretreatment Vessel Vent Process System. Any reference in this Permit to Permit Table III.10.G.A is also a reference to Permit Table III.10.G.A.i.

[b] Requirements pertaining to the tanks in the Pretreatment Plant Miscellaneous Unit Systems are specified in Section III.10.E. of this Permit.

Table III.10.G.A.i. – Pretreatment Plant Miscellaneous Unit Systems' Pretreatment Vessel Vent Process System

Description	Designation	Description Drawings	Narrative Description, Tables & Figures
Pretreatment Vessel Vent Process System (Comprised of the following: Vessel Vent Header Collection Vessel V15052[b], Condensate Collection Vessel V15038[b], Caustic scrubber, High Efficiency Mist Eliminators (HEME), HEME Drain Collection Vessels V15326-7[b], Electric Heaters, Primary & Secondary High Efficiency Particulate Air Filters (HEPA), Heat Exchanger, Thermal Catalytic Oxidizer, Aftercooler, Carbon Bed Adsorbers, Vessel Vent Adsorber Outlet Filter, Vessel Vent Adsorber Outlet Air Filter, Pumps, Fans, Vessel Vent Heaters, Pumps, PVP Stack and associated equipment)	PVP/PVV	RESERVED	Section 4.1.2.17; Figure 4A-1, 4A-2, and 4A-19 of Attachment 51, Chapter 4 of this Permit

[a] The Pretreatment Vessel Vent Process System specified in Permit Table III.10.G.A.i is shared between the Pretreatment Plant Miscellaneous Unit Systems. Any references in this Permit to the individual Pretreatment Plant Miscellaneous Unit Systems are also a reference to the Pretreatment Vessel Vent Process System. Any reference in this Permit to Permit Table III.10.G.A is also a reference to Permit Table III.10.G.A.i.

[b] Requirements pertaining to the tanks in the Pretreatment Plant Miscellaneous Unit Systems are specified in Section III.10.E. of this Permit.

Table III.10.G.B. – Pretreatment Plant Miscellaneous Unit Secondary Containment Systems Including Sumps and Floor Drains

Sump/Floor Drain I.D.# & Room Location	Maximum Sump Capacity (gallons)	Sump Dimensions (feet) & Materials of Construction	Description Drawings[#]	~~Leak Detection Type~~
RESERVED	RESERVED	RESERVED	RESERVED	~~RESERVED~~

Table III.10.G.C. – Pretreatment Plant Miscellaneous Unit System Process and Leak Detection Instruments and ~~Process~~ Parameters

Miscellaneous Unit System Locator and Name (including P&ID)	Control Parameter	Type of Measuring or Leak Detection Instrument	Location of Measuring Instrument (Tag No.)	Instrument Range	Failure State	Expected Range	Instrument Accuracy	Operating Trips (Description & Numerical Limits)	Instrument Calibration Method No. and Range
RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	RESERVED

Table III.10.G.D. – Pretreatment Plant Miscellaneous Unit Systems Estimated Emission Rates

Chemicals	CAS Number	Emission Rates (grams /second)
RESERVED	RESERVED	RESERVED

III.10.H LAW Vitrification System – Short Term Miscellaneous Thermal Treatment Unit-Shakedown, Demonstration Test, and Post Demonstration Test

For purposes of Permit Section III.10.H, where reference is made to WAC 173-303-640, the following substitutions apply: substituting the terms "LAW Vitrification System" for "tank system(s)," "sub-system(s)" for "tank(s)," "sub-system equipment" for "ancillary equipment," and "sub-system(s) or sub-system equipment of a LAW Vitrification System" for "component(s)" in accordance with WAC 173-303-680.

III.10.H.1. General Conditions During Shakedown, Demonstration Test, and Post-Demonstration Test for LAW Vitrification System

III.10.H.1.a. Construction and Maintenance [WAC 173-303-640, in accordance with WAC 173-303-680(2) and (3), and WAC 173-303-340].

i. The Permittees shall construct the LAW Vitrification System (listed in Permit Tables III.10.H.A and B., as approved/modified pursuant to Permit Condition III.10.H.5.) as specified in Permit Condition III.10.H.1. and Attachment 51, Chapter 4.0 of this Permit, and Attachment 51, Appendices 9.1 through 9.15 and 9.17 of this Permit, as approved pursuant to Permit Conditions III.10.H.5.a. through d., and III.10.H.5.f.

ii. The Permittees shall construct all containment systems for the LAW Vitrification System as specified in Attachment 51, Chapter 4.0 of this Permit, and Attachment 51, Appendices 9.2 and 9.4 through 9.14 of this Permit, as approved pursuant to Permit Conditions III.10.H.5.a. through d.

iii. The Permittees shall ensure all certifications required by specialists (e.g., independent, qualified registered professional engineer, independent corrosion expert, independent, qualified installation inspector, etc.) use the following statement or equivalent pursuant to Permit Condition III.10.C.10.:

"I, (Insert Name) have (choose one or more of the following: overseen, supervised, reviewed, and/or certified) a portion of the design or installation of a new LAW Vitrification System or component located at (address), and owned/operated by (name(s)). My duties were: (e.g., installation inspector, testing for tightness, etc.), for the following LAW Vitrification System components (e.g., the venting piping, etc.), as

required by the Dangerous Waste Regulations, namely, WAC 173-303-640(3) (applicable paragraphs (i.e., (a) through (g)) in accordance with WAC 173-303-680).

"I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment."

iv. The Permittees must ensure that proper handling procedures are adhered to in order to prevent damage to the LAW Vitrification System during installation. Prior to covering, enclosing, or placing the new LAW Vitrification System or component in use, an independent, qualified, installation inspector or an independent, qualified, registered professional engineer, either of whom is trained and experienced in the proper installation of similar systems or components, must inspect the system for the presence of any of the following items:

A. Weld breaks;

B. Punctures;

C. Scrapes of protective coatings;

D. Cracks;

E. Corrosion;

F. Other structural damage or inadequate construction/installation.

All discrepancies must be remedied before the LAW Vitrification System is covered, enclosed, or placed in use [WAC 173-303-640(3)(c), in accordance with WAC 173-303-680(2) and (3)].

v. For the LAW Vitrification System or components that are placed underground and that are back-filled, the Permittees must provide a backfill material that is a non-corrosive, porous, homogeneous substance. The backfill must be installed so that it is placed completely around the LAW Vitrification System and compacted to ensure that the LAW Vitrification System is fully and uniformly supported [WAC 173-303-640(3)(d), in accordance with WAC 173-303-680(2) and (3)].

vi. The Permittees must test for tightness the LAW Vitrification System or components, prior to being covered, enclosed, or placed into use. If the LAW Vitrification System or components are found not to be tight, all repairs necessary to remedy the leak(s) in the system must be performed prior to the LAW Vitrification System being covered, enclosed, or placed in use [WAC 173-303-640(3)(e), in accordance with WAC 173-303-680(2) and (3)].

vii. The Permittees must ensure the LAW Vitrification System equipment is supported and protected against physical damage and excessive stress due to settlement, vibration, expansion, or contraction [WAC 173-303-640(3)(f), in accordance with WAC 173-303-680(2) and (3)].

viii. The Permittees must provide the type and degree of corrosion protection recommended by an independent corrosion expert, based on the information provided in Attachment 51, Appendices 9.9 and 9.11 of this Permit, as approved pursuant to Permit Conditions III.10.H.5.b.i., III.10.H.5.b.iv., III.10.H.5.b.v., III.10.H.5.c.i., III.10.H.5.c.iv., III.10.H.5.c.v., III.10.H.5.d.i., III.10.H.5.d.iv., and III.10.H.5.d.v., or other corrosion protection if Ecology believes other corrosion protection is necessary to ensure the integrity of the LAW Vitrification System during use of the LAW Vitrification System. The installation of a corrosion protection system that is field fabricated must be supervised by an independent corrosion expert to ensure proper installation [WAC 173-303-640(3)(g), in accordance with WAC 173-303-680(2) and (3)].

ix. Prior to initial receipt of dangerous and/or mixed waste in the WTP Unit, the Permittees shall obtain and keep on file in the WTP Unit operating record, written statements by those persons required to certify the design of the LAW Vitrification System and supervise the installation of the LAW Vitrification System, as specified in WAC 173-303-640(3)(b), (c), (d), (e), (f), and (g), in accordance with WAC 173-303-680, attesting that the LAW Vitrification System and corresponding containment system listed in Permit Tables III.10.H.A and III.10.H.B, as approved/modified pursuant to Permit Condition III.10.H.5., were properly designed and installed, and that repairs, in accordance with WAC 173-303-640(3)(c) and (e) were performed [WAC 173-303-640(3)(a) and WAC 173-303-640(3)(h), in accordance with WAC 173-303-680(3)].

x. The independent LAW Vitrification System installation inspection and subsequent written statements shall be certified in accordance with WAC 173-303-810(13)(a), as modified pursuant to Permit Condition III.10.H.1.a.iii., comply with all requirements of WAC 173-303-640(3)(h) in accordance with WAC 173-303-680, and shall consider, but not be limited to, the following LAW Vitrification System installation documentation:

A. Field installation report with date of installation;

B. Approved welding procedures;

C. Welder qualification and certifications;

D. Hydro-test reports, as applicable, in accordance with the American Society of Mechanical Engineers Boiler and Pressure Vessel Code, Section VIII, Division 1; American Petroleum Institute (API) Standard 620, or Standard 650, as applicable;

E. Tester credentials;

F. Field inspector credentials;

G. Field inspector reports;

H. Field waiver reports; and

I. Non-compliance reports and corrective action (including field waiver reports) and repair reports.

xi. The Permittees shall ensure periodic integrity assessments are conducted on the LAW Vitrification System, listed in Permit Table III.10.H.A, as approved/modified pursuant to Permit Condition III.10.H.5., over the term of this Permit in accordance with WAC 173-303-680(2) and (3) as specified in WAC 173-303-640(3)(b), following the description of the integrity assessment program and schedule in Attachment 51, Chapter 6.0 of this Permit, as approved pursuant to Permit Conditions III.10.H.5.e.i. and III.10.C.5.c. Results of the integrity assessments shall be included in the WTP Unit operating record until ten (10) years after post-closure, or corrective action is complete and certified, whichever is later.

xii. The Permittees shall address problems detected during the LAW Vitrification System integrity assessments specified in Permit Condition III.10.H.1.a.xi. following the integrity assessment program in Attachment 51, Chapter 6.0 of this Permit, as approved pursuant to Permit Conditions III.10.H.5.e.i. and III.10.C.5.c.

xiii. All process monitors/instruments, as specified in Permit Table III.10.H.F, as approved/modified pursuant to Permit Condition III.10.H.5., shall be equipped with operational alarms to warn of deviation, or imminent deviation from the limits specified in Permit Table III.10.H.F.

xiv. The Permittees shall install and test all process and leak detection system monitors/instrumentation as specified in Permit Tables III.10.H.C and III.10.H.F, as approved/modified pursuant to Permit Condition III.10.H.5, in accordance with Attachment 51, Appendices 9.1, 9.2, and 9.14 ~~and 9.15~~ of this Permit, as approved pursuant to Permit Conditions III.10.H.5.d.x. and III.10.H.5.f.xvi.

xv. No dangerous and/or mixed waste shall be treated in the LAW Vitrification System unless the operating conditions, specified under Permit Condition III.10.H.1.c. are complied with.

xvi. The Permittees shall not place dangerous and/or mixed waste, treatment reagents, or other materials in the LAW Vitrification System if these substances could cause the subsystem, subsystem equipment, or the containment system to rupture, leak, corrode, or otherwise fail [WAC 173-303-640(5)(a), in accordance with WAC 173-303-680(2)]. This condition is not applicable to corrosion of LAW Vitrification System sub-system or sub-system equipment that are expected to be replaced as part of normal operations (e.g., melters).

xvii. The Permittees shall operate the LAW Vitrification System to prevent spills and overflows using controls and practices as required under WAC 173-303-640(5)(b) described in Permit Condition III.10.C.5 and Attachment 51, Appendix 9.18 of this Permit, as approved pursuant to Permit Condition III.10.H.5.e. [WAC 173-303-640(5)(b), in accordance with WAC 173-303-680(2) and (3), and WAC 173-303-806(4)(c)(ix)].

xviii. For routinely non-accessible LAW Vitrification System sub-systems, as specified in Attachment 51, Chapter 4.0 of this Permit, as updated pursuant to Permit Condition III.10.H.5.e.vi., the Permittees shall mark all routinely non-accessible LAW Vitrification System sub-systems access points with labels, or signs, to identify the waste contained in each LAW Vitrification System sub-system. The label, or sign, must be legible at a distance of at least fifty (50) feet, and must bear a legend which identifies the waste in a manner which adequately warns employees, emergency response personnel, and the public of the major risk(s) associated with the waste being stored or treated in the LAW Vitrification System sub-systems. For the purposes of this permit condition, "routinely non-accessible" means personnel are unable to enter these areas while waste is being managed in them [WAC 173-303-640(5)(d), in accordance with WAC 173-303-680(2)].

xix. For all LAW Vitrification System sub-systems not addressed in Permit Condition III.10.H.1.a.xviii., the Permittees shall mark all these LAW Vitrification System sub-systems holding dangerous and/or mixed waste with labels, or signs, to identify the waste contained in the LAW Vitrification System sub-systems. The labels, or signs, must be legible at a distance of at least fifty (50) feet, and must bear a legend which identifies the waste in a manner which adequately warns employees, emergency response personnel, and the public of the major risk(s) associated with the waste being stored or treated in the LAW Vitrification System sub-systems [WAC 173-303-640(5)(d), in accordance with WAC 173-303-680(2)].

xx. The Permittees shall ensure that the secondary containment systems for the LAW Vitrification System sub-systems listed in Permit Tables III.10.H.A. and III.10.H.B, as approved/modified pursuant to Permit Condition III.10.H.5, are free of cracks or gaps to prevent any migration of dangerous and/or mixed waste or accumulated liquid out of the system to the soil, groundwater, or surface water at any time during use of the LAW Vitrification System sub-systems. Any indication that a crack or gap may exist in the containment systems shall be investigated and repaired in accordance with Attachment 51, Appendix 9.18 of this Permit, as approved pursuant to Permit Condition III.10.H.5.e.v. [WAC 173-303–640(4)(b)(i), WAC 173-303–640(4)(e)(i)(C), and WAC 173-303-640(6), in accordance with WAC 173-303-680(2) and (3), WAC 173-303-806(4)(i)(i)(B), and WAC 173-303-320].

xxi. The Permittees must immediately, and safely, remove from service any LAW Vitrification System or secondary containment system which through an integrity assessment is found to be "unfit for use" as defined in WAC 173-303-040, following Permit Conditions III.10.H.1.a.xxiii.A. through D., and F. The affected LAW Vitrification System or secondary containment system must be either repaired or closed in accordance with Permit Condition III.10.H.1.a.xxiii.E. [WAC 173-303-640(7)(e) and (f), WAC 173-303-640(8), in accordance with WAC 173-303-680(3)].

xxii. An impermeable coating, as specified in Attachment 51, Appendices 9.4, 9.5, 9.7, 9.9, 9.11, and 9.12 of this Permit, as approved pursuant to Permit Condition III.10.H.5.b.v. shall be maintained for all concrete containment systems and concrete portions of containment systems for each LAW Vitrification System sub-systems listed in Permit

Tables III.10.H.A and III.10.H.B, as approved/modified pursuant to Permit Condition III.10.H.5 (concrete containment systems that do not have a liner, pursuant to WAC 173-303-640(4)(e)(i), in accordance with WAC 173-303-680(2), and have construction joints, shall meet the requirements of WAC 173-303-640(4)(e)(ii)(C), in accordance with WAC 173-303-680(2). The coating shall prevent migration of any dangerous and mixed waste into the concrete. All coatings shall meet the following performance standards:

A. The coating must seal the containment surface such that no cracks, seams, or other avenues through which liquid could migrate are present;

B. The coating must be of adequate thickness and strength to withstand the normal operation of equipment and personnel within the given area such that degradation or physical damage to the coating or lining can be identified and remedied before dangerous and mixed waste could migrate from the system; and

C. The coating must be compatible with the dangerous and mixed waste, treatment reagents, or other materials managed in the containment system [WAC 173-303-640(4)(e)(ii)(D), in accordance with WAC 173-303-680(2) and (3), and WAC 173-303-806(4)(i)(i)(A)].

xxiii. The Permittees shall inspect all secondary containment systems for the LAW Vitrification System sub-systems listed in Permit Tables III.10.H.A and III.10.H.B, as approved/modified pursuant to Permit Condition III.10.H.5., in accordance with the Inspection Schedule specified in Attachment 51, Chapter 6.0 of this Permit, as approved pursuant to Permit Conditions III.10.H.5.e.i. and III.10.C.5.c., and take the following actions if a leak or spill of dangerous and/or mixed waste is detected in these containment systems [WAC 173-303-640(5)(c) and WAC 173-303-640(6), in accordance with WAC 173-303-680(2) and (3), WAC 173-303-320, and WAC 173-303-806(4)(i)(i)(B)]:

A. Immediately, and safely, stop the flow of dangerous and/or mixed waste into the LAW Vitrification System sub-systems or secondary containment system.

B. Determine the source of the dangerous and/or mixed waste.

C. Remove the dangerous and/or mixed waste from the containment area in accordance with WAC 173-303-680(2) and (3) as specified in WAC 173-303-640(7)(b). The dangerous and/or mixed waste removed from containment areas of the LAW Vitrification System sub-systems shall be, as a minimum, managed as mixed waste.

D. If the cause of the release was a spill that has not damaged the integrity of the LAW Vitrification System sub-system, the Permittees may return the LAW Vitrification System sub-system to service in accordance with WAC 173-303-680(2) and (3) as specified in WAC 173-303-640(7)(e)(ii). In such case, the Permittees shall take action to insure the incident that caused the dangerous and/or mixed waste to enter the containment system will not reoccur [WAC 173-303-320(3)].

E. If the source of the dangerous and/or mixed waste is determined to be a leak from the primary LAW Vitrification System into the secondary containment system, or the system is unfit for use as determined through an integrity assessment or other inspection, the Permittees shall comply with the requirements of WAC 173-303-640(7) and take the following actions:

1. Close the LAW Vitrification System sub-system following procedures in WAC 173-303-640(7)(e)(i), in accordance with WAC 173-303-680 and Attachment 51, Chapter 11.0 of this Permit, as approved pursuant to Permit Condition III.10.C.8., or

2. Repair and re-certify (in accordance with WAC 173-303-810(13)(a), as modified pursuant to Permit Condition III.10.H.1.a.iii.) the LAW Vitrification System, in accordance with Attachment 51, Appendix 9.18 of this Permit, as approved pursuant to Permit Condition III.10.H.5.e.v., before the LAW Vitrification System is placed back into service [WAC 173-303-640(7)(e)(iii) and WAC 173-303-640(7)(f), in accordance with WAC 173-303-680].

F. The Permittees shall document in the operating record actions/procedures taken to comply with A. through E. above as specified in WAC 173-303-640(6)(d), in accordance with WAC 173-303-680(2) and (3).

G. In accordance with WAC 173-303-680(2) and WAC 173-303-680 (3), the Permittees shall notify and report releases to the environment to Ecology as specified in WAC 173-303-640(7)(d).

xxiv. If liquids (e.g., dangerous and/or mixed waste leaks and spills, precipitation, fire water, liquids from damaged or broken pipes) cannot be removed from the secondary containment system within twenty-four (24) hours, Ecology will be verbally notified within twenty-four (24) hours of discovery. The notification shall provide the information in A, B, and C, listed below. The Permittees shall provide Ecology with a written demonstration within seven (7) business days, identifying at a minimum [WAC 173-303-640(4)(c)(iv) and WAC 173-303-640(7)(b)(ii), in accordance with WAC 173-303-680(3) and WAC 173-303-806(4)(i)(i)(B)]:

A. Reasons for delayed removal;

B. Measures implemented to ensure continued protection of human health and the environment;

C Current actions being taken to remove liquids from secondary containment.

xxv. All air pollution control devices and capture systems in the LAW Vitrification System shall be maintained and operated at all times in a manner so as to minimize the emissions of air contaminants and to minimize process upsets. Procedures for ensuring that the air pollution control devices and capture systems in the LAW Vitrification System are properly operated and maintained so as to minimize the emission of air contaminants and process upsets shall be established.

xxvi. In all future narrative permit submittals, the Permittees shall include LAW Vitrification sub-system names with the sub-system designation.

xxvii. Modifications to approved design, plans, and specifications in Attachment 51 of this Permit for the LAW Vitrification System shall be allowed only in accordance with Permit Conditions III.10.C.2.e. and f., or III.10.C.2.g., III.10.C.9.d., III.10.C.9.e., and III.10.C.9.h.

xxviii. For any portion of the LAW Vitrification System which has the potential for formation and accumulation of hydrogen gases, the Permittees shall operate the portion to maintain hydrogen levels below the lower explosive limit [WAC 173-303-815(2)(b)(ii)].

xxix. For each LAW Vitrification System sub-system holding dangerous waste which are acutely or chronically toxic by inhalation, the Permittees shall operate the system to prevent escape of vapors, fumes or other emissions into the air [WAC 173-303-806(4)(i)(i)(B) and WAC 173-303-640(5)(e), in accordance with WAC 173-303-680].

III.10.H.1.b. Performance Standards

i. The LAW Vitrification System must achieve a destruction and removal efficiency (DRE) of 99.99% for the principal organic dangerous constituents (PODCs) listed below [40 CFR §63.1203(c)(1), 40CFR 63.1203(c)(2), in accordance with WAC 173-303-680(2)]:

RESERVED

DRE in this permit condition shall be calculated in accordance with the formula given below:

$$DRE=[1-(W_{out}/W_{in})] \times 100\%$$

Where:

W_{in}=mass feed-rate of one principal organic dangerous constituent (PODC) in a waste feedstream; and

W_{out}=mass emission rate of the same PODC present in exhaust emissions prior to release to the atmosphere.

ii. Particulate matter emissions from the LAW Vitrification System shall not exceed 34 mg/dscm (0.015 grains/dscf) [40 CFR §63.1203(b)(7), in accordance with WAC 173-303-680(2)].

iii. Hydrochloric acid and chlorine gas emissions from the LAW Vitrification System shall not exceed 21 ppmv, combined [40 CFR §63.1203(b)(6), in accordance with WAC 173-303-680(2)].

iv. Dioxin and Furan TEQ emissions from the LAW Vitrification System shall not exceed 0.2 nanograms (ng)/dscm [40 CFR §63.1203(b)(1), in accordance with WAC 173-303-680(2)].

v. Mercury emissions from the LAW Vitrification System shall not exceed 45 µg/dscm [40 CFR §63.1203(b)(2), in accordance with WAC 173-303-680(2)].

vi. Lead and cadmium emissions from the LAW Vitrification System shall not exceed 120 µg/dscm, combined [40 CFR §63.1203(b)(3), in accordance with WAC 173-303-680(2)].

vii. Arsenic, beryllium, and chromium emissions from the LAW Vitrification System shall not exceed 97 µg/dscm, combined [40 CFR §63.1203(b)(4), in accordance with WAC 173-303-680(2)].

viii. Carbon monoxide (CO) emission from the LAW Vitrification System shall not exceed 100 parts per million (ppm) by volume, over an hourly rolling average (as measured and recorded by the continuous monitoring system), dry basis [40 CFR §63.1203(b)(5)(i), in accordance with WAC 173-303-680(2)].

ix. Hydrocarbon emission from the LAW Vitrification System shall not exceed 10 parts per million (ppm) by volume, over an hourly rolling average (as measured and recorded by the continuous monitoring system during demonstration testing required by this Permit), dry basis, and reported as propane [40 CFR §63.1203(b)(5)(ii), in accordance with WAC 173-303-680(2)].

x. If the emissions from the LAW Vitrification System exceed the emission rates listed in Permit Table III.10.H.E, as approved pursuant to Permit Condition III.10.C.11.b., the Permittees shall notify Ecology in accordance with Permit Condition III.10.H.3.d.vii. [WAC 173-303-680(2) and (3), and WAC 173-303-815(2)(b)(ii)]**.**

The emission limits specified in Permit Conditions III.10.H.1.b.i. through III.10.H.1.b.x. above, shall be met for the LAW Vitrification System by limiting feed-rates as specified in Permit Tables III.10.H.D. and III.10.H.F., as approved/modified pursuant to Permit Condition III.10.H.5., compliance with operating conditions specified in Permit Condition III.10.H.1.c. (except as specified in Permit Condition III.10.H.1.b.xii.), and compliance with Permit Condition III.10.H.1.b.xi.

xi. Treatment effectiveness, feed-rates and operating rates for dangerous and mixed waste management units contained in the LAW Building, but not included in Permit Table III.10.H.A, as approved/modified pursuant to Permit Condition III.10.H.5., shall be as specified in Permit Sections III.10.D, III.10.E, III.10.F and consistent with assumptions and basis which are reflected in Attachment 51, Appendix 6.3.1 of this Permit, as approved pursuant to Permit Condition III.10.C.11.b. For the purposes of this permit condition, Attachment 51, Appendix 6.3.1 shall be superceded by Appendix 6.4.1 upon its approval pursuant to either Permit Conditions III.10.C.11.c. or III.10.C.11.d. [WAC 173-303-680(2) and (3), and WAC 173-303-815(2)(b)(ii)].

xii. Compliance with the operating conditions specified in Permit Condition III.10.H.1.c., shall be regarded as compliance with the required performance standards identified in Permit Conditions III.10.H.1.b.i. through x. However, if it is determined that during the effective period of this Permit that compliance with the operating conditions in Permit Condition III.10.H.1.c. is not sufficient to ensure compliance with the performance

standards specified in Permit Conditions III.10.H.1.b.i. through x., the Permit may be modified, revoked, or reissued pursuant to Permit Conditions III.10.C.2.e. and III.10.C.2.f., or III.10.C.2.g.

III.10.H.1.c. Operating Conditions [WAC-303-670(6), in accordance with WAC 173-303-680(2)and (3)].

The Permittees shall operate the LAW Vitrification System in accordance with Attachment 51, Chapter 4.0 of this Permit, as updated pursuant to Permit Condition III.10.H.5.e.vi., Attachment 51, Appendix 9.18 of this Permit, as approved pursuant to Permit Condition III.10.H.5.e., and Attachment 51, Appendix 9.15 of this Permit, as approved pursuant to Permit Condition III.10.H.5.f., except as modified pursuant to Permit Conditions III.10.H.1.b.xii., III.10.H.2., III.10.H.3., III.10.H.4., and in accordance with the following:

i. The Permittees shall operate the LAW Vitrification System in order to maintain the systems and process parameters listed in Permit Tables III.10.H.C and III.10.H.F, as approved/modified pursuant to Permit Condition III.10.H.5., within the set-points specified in Permit Table III.10.H.F.

ii. The Permittees shall operate the AWFCO systems, specified in Permit Table III.10.H.F, as approved/modified pursuant to Permit Condition III.10.H.5., to automatically cut-off and/or lock-out the dangerous and mixed waste feed to the LAW Vitrification System when the monitored operating conditions deviate from the set-points specified in Permit Table III.10.H.F.

iii. The Permittees shall operate the AWFCO systems, specified in Permit Table III.10.H.F, as approved/modified pursuant to Permit Condition III.10.H.5., to automatically cut-off and/or lock-out the dangerous and mixed waste feed to the LAW Vitrification System when all instruments specified on Permit Table III.10.H.F for measuring the monitored parameter fail or exceed its span value.

iv. The Permittees shall operate the AWFCO systems, specified in Permit Table III.10.H.F, as approved/modified pursuant to Permit Condition III.10.H.5., to automatically cut-off and/or lock out the dangerous and/or mixed waste feed to the LAW Vitrification System when any portion of the LAW Vitrification System is bypassed. The terms “bypassed” and “bypass event” as used in Permit Sections III.10.H and III.10.I shall mean if any portion of the LAW Vitrification System is bypassed so that gases are not treated as during the Demonstration Test.

v. In the event of a malfunction of the AWFCO systems listed in Permit Table III.10.H.F, as approved/modified pursuant to Permit Condition III.10.H.5., the Permittees shall immediately, manually cut-off the dangerous and mixed waste feed to the LAW Vitrification System. The Permittees shall not restart the dangerous and/or mixed waste feed until the problem causing the malfunction has been identified and corrected.

vi. The Permittees shall manually cut-off the dangerous and mixed waste feed to the LAW Vitrification System when the operating conditions deviate from the limits specified in Permit Condition III.10.H.1.c.i., unless the deviation automatically activates the waste feed cut-off sequence specified in Permit Conditions III.10.H.1.c.ii., III.10.H.1.c.iii., and/or III.10.H.1.c.iv.

vii. If greater than thirty (30) dangerous and mixed waste feed cut-off, combined, to the LAW Vitrification System occur due to deviations from Permit Table III.10.H.F, as approved/modified pursuant to Permit Condition III.10.H.5., within a sixty (60) day period, the Permittees shall submit a written report to Ecology within five (5) calendar days of the thirty-first exceedance including the information specified below. These dangerous and mixed waste feed cut-offs to the LAW Vitrification System, whether automatically or manually activated, are counted if the specified set points are deviated from while dangerous waste, mixed waste, and waste residues continue to be processed in the LAW Vitrification System. A cascade event is counted at a frequency of one (1) towards the first waste feed cut-off parameter, specified on Permit Table III.10.H.F, from which the set-point is deviated:

A. The parameter(s) that deviated from the set-point(s) in Permit Table III.10.H.F;

B. The magnitude, dates, and duration of the deviations;

C. Results of the investigation of the cause of the deviations; and

D. Corrective measures taken to minimize future occurrences of the deviations.

viii. If any portion of the LAW Vitrification System is bypassed while treating dangerous and/or mixed waste it shall be regarded as non-compliance with the operating conditions specified in Permit Condition III.10.H.1.c. and the performance standards specified in Permit Condition III.10.H.1.b. After such a bypass event, the Permittees shall perform the following actions:

A. Investigate the cause of the bypass event;

B. Take appropriate corrective measures to minimize future bypasses;

C. Record the investigation findings and corrective measures in the operating record; and

D. Submit a written report to Ecology within five (5) days of the bypass event documenting the result of the investigation and corrective measures.

ix. The Permittees shall control fugitive emissions from the LAW Vitrification System by maintaining the melters under negative pressure.

x. Compliance with the operating conditions specified in Permit Condition III.10.H.1.c. shall be regarded as compliance with the required performance standards identified in Permit Condition III.10.H.1.b. However, evidence that compliance with these operating conditions is insufficient to ensure compliance with the performance standards, shall justify modification, revocation, or re-issuance of this Permit, in accordance with Permit Conditions III.10.C.2.e. and III.10.C.2.f., or III.10.C.2.g.

III.10.H.1.d. Inspection Requirements [WAC 173-303-680(3)]

i. The Permittees shall inspect the LAW Vitrification System in accordance with the Inspection Schedules in Attachment 51, Chapter 6.0 of this Permit, as modified in accordance with Permit Condition III.10.C.5.c.

ii. The inspection data for LAW Vitrification System shall be recorded, and the records shall be placed in the WTP Unit operating record for the LAW Vitrification System, in accordance with Permit Condition III.10.C.4.

iii. The Permittees shall comply with the inspection requirements specified in Attachment 51, Appendix 9.15 of this Permit, as approved pursuant to Permit Condition III.10.H.5.f., and as modified by Permit Conditions III.10.H.1.b.xii., III.10.H.2., III.10.H.3., and III.10.H.4.

III.10.H.1.e. Monitoring Requirements [WAC 173-303-670(5), WAC 173-303-670(6), WAC -173-303-670(7) and WAC 173-303-807(2), in accordance with WAC 173-303-680(3)]

i. Upon receipt of a written request from Ecology, the Permittees shall perform sampling and analysis of the dangerous and mixed waste and exhaust emissions to verify that the operating requirements established in the Permit achieve the performance standards delineated in this Permit.

ii. The Permittees shall comply with the monitoring requirements specified in Attachment 51, Appendices 9.2, 9.3, 9.7, 9.13, 9.15 and 9.18 of this Permit, as approved pursuant to Permit Conditions III.10.H.5.c., III.10.H.5.d., III.10.H.5.e., and III.10.H.5.f., as modified by Permit Conditions III.10.H.1.b.xii., III.10.H.2., III.10.H.3., and III.10.H.4.

iii. The Permittees shall operate, calibrate, and maintain the carbon monoxide and hydrocarbon continuous emission monitors (CEM) specified in this Permit in accordance with Performance Specification 4B and 8A of 40 CFR Part 60, Appendix B, in accordance with Appendix to Subpart EEE of 40 CFR Part 63, and Attachment 51 Appendix 9.15 of this Permit, as approved pursuant to Permit Condition III.10.H.5.f., and as modified by Permit Conditions III.10.H.1.b.xii., III.10.H.2., III.10.H.3., and III.10.H.4.

iv. The Permittees shall operate, calibrate, and maintain the instruments specified on Permit Tables III.10.H.C, and F, as approved/modified pursuant to Permit Condition III.10.H.5., in accordance with Attachment 51, Appendix 9.15 of this Permit, as approved pursuant to Permit Condition III.10.H.5.f., and as modified by Permit Conditions III.10.H.1.b.xii., III.10.H.2., III.10.H.3., and III.10.H.4.

III.10.H.1.f. Recordkeeping Requirements [WAC 173-303-380 and WAC 173-303-680(3)]

i. The Permittees shall record and maintain in the WTP Unit operating record for the LAW Vitrification System, all monitoring, calibration, maintenance, test data, and inspection data compiled under the conditions of this Permit, in accordance with Permit Conditions III.10.C.4. and III.10.C.5., as modified by Permit Conditions III.10.H.1.b.xii., III.10.H.2., III.10.H.3., and III.10.H.4.

ii. The Permittees shall record in the WTP Unit operating record the date, time, and duration of all automatic waste feed cutoffs and/or lockouts, including the triggering parameters, reason for the deviation, and recurrence of the incident. The Permittees shall also record all incidents of AWFCO system function failures, including the corrective measures taken to correct the condition that caused the failure.

iii. The Permittees shall submit to Ecology a report semi-annually the first calendar year, and annually thereafter each calendar year within ninety (90) days following the end of the year. The report will include the following information:

A. Total dangerous and mixed waste feed processing time for the LAW Vitrification System;

B. Date/Time of all LAW Vitrification System startups and shutdowns;

C. Date/Time/Duration/Cause/Corrective Action taken for all LAW Vitrification System shutdowns caused by malfunction of either process or control equipment; and

D. Date/Time/Duration/Cause/Corrective Action taken for all instances of dangerous and/or mixed waste feed cut-off due to deviations from Permit Table III.10.H.F, as approved/modified pursuant to Permit Condition III.10.H.5.

iv. The Permittees shall submit an annual report to Ecology each calendar year within ninety (90) days following the end of the year of all quarterly CEM Calibration Error and Annual CEM Performance Specification Tests conducted in accordance with Permit Condition III.10.H.1.e.iii.

III.10.H.1.g. Closure

The Permittees shall close the LAW Vitrification System in accordance with Attachment 51, Chapter 11.0 of this Permit, as approved pursuant to Permit Condition III.10.C.8.

III.10.H.2. Shakedown Period [WAC 173-303-670(5), WAC 173-303-670(6), WAC -173-303-670(7), and WAC 173-303-807(2), in accordance with WAC 173-303-680(2) and (3)].

III.10.H.2.a. The shakedown period for the LAW Vitrification System shall be conducted in accordance with Permit Condition III.10.H.1., Attachment 51, Appendix 9.15 of this Permit, as approved pursuant to Permit Condition III.10.H.5.f., and as modified in accordance with Permit Conditions III.10.H.1.b.xii., III.10.H.2., and III.10.H.3.

III.10.H.2.b. Duration of the Shakedown Period

i. The shakedown period for the LAW Vitrification System shall begin with the initial introduction of dangerous waste in the LAW Vitrification System following construction and shall end with the start of the demonstration test.

ii. The shakedown period shall not exceed the following limits, as defined by hours of operation of the LAW Vitrification System with dangerous waste. The Permittees may petition Ecology for one extension of each shakedown phase for seven hundred and twenty (720) additional operating hours in accordance with Permit modification procedures specified in Permit Conditions III.10.C.2.e. and III.10.C.2.f.

Shakedown Phase 1: 720 hours

Shakedown Phase 2: 720 hours

iii. Shakedown Phase 2 shall not be commenced until documentation has been submitted to Ecology verifying that the LAW Vitrification System has operated at a minimum of

75% of the shakedown Phase 1 feed-rate limit for two (2) separate eight (8) consecutive hour periods with no AWFCOs.

III.10.H.2.c. Allowable Waste Feed During the Shakedown Period

i. The Permittees may feed the dangerous waste specified for the LAW Vitrification System on the Part A Forms (Attachment 51, Chapter 1.0 of this Permit), except for those wastes outside the waste acceptance criteria specified in the WAP, Attachment 1, Chapter 3.0 of this Permit, as approved pursuant to Permit Condition III.10.C.3., except Permit Conditions III.10.H.2.c.ii. through v. also apply.

ii. The Permittees shall not feed the following wastes to the LAW Vitrification System during Shakedown Phase 1:

A. Acutely toxic dangerous waste listed in WAC 173-303-081(a)(2)(a)(i).

B. Mixed waste

iii. The Permittees shall not feed the following waste to the LAW Vitrification System during Shakedown Phase 2:

A. Mixed waste

iv. The feed-rates to the LAW Vitrification System shall not exceed the limits in Permit Tables III.10.H.D and III.10.H.F, as approved/modified pursuant to Permit Condition III.10.H.5.

v. The Permittees shall conduct sufficient analysis of the dangerous waste treated in the LAW Vitrification System to verify that the waste feed is within the physical and chemical composition limits specified in this Permit.

III.10.H.3. Demonstration Test Period [WAC 173-303-670(5), WAC 173-303-670(6), WAC 173-303-670(7), and WAC 173-303-807(2), in accordance with WAC 173-303-680(2) and (3)].

III.10.H.3.a. Demonstration Test Period

i. The Permittees shall operate, monitor, and maintain the LAW Vitrification System as specified in Permit Condition III.10.H.1., and Attachment 51, Appendix 9.15 of this Permit, as approved pursuant to Permit Condition III.10.H.5.f., except as modified in accordance with Permit Conditions III.10.H.1.b.xii., and III.10.H.3.

ii. Attachment 51, Appendix 9.15 of this Permit, as approved pursuant to Permit Condition III.10.H.5.f., shall be resubmitted to Ecology for approval by the Permittees as a permit modification pursuant to Permit Conditions III.10.C.2.e. and III.10.C.2.f. at least one hundred and eighty (180) days prior to the start date of the demonstration test. The revised Demonstration Test Plan shall include applicable EPA promulgated test methods and procedures in effect at the time of the re-submittal and projected commencement and completion dates for the Demonstration Test.

iii. The Permittees shall not commence the demonstration test period until documentation has been submitted to Ecology verifying that the LAW Vitrification System has operated at a minimum of 90% of the demonstration test period feed-rate limit for a minimum of an eight (8) consecutive hours period on two (2) consecutive days.

III.10.H.3.b. Performance Standards

The Permittees shall demonstrate compliance with the performance standards specified in Permit Condition III.10.H.1.b. during the Demonstration Test Period.

III.10.H.3.c. Allowable Waste Feed During the Demonstration Test Period

i. The Permittees may feed the dangerous waste specified for the LAW Vitrification System in Part A Forms (Attachment 51, Chapter 1.0 of this Permit), except for those waste outside the waste acceptance criteria specified in the WAP, Attachment 51, Chapter 3.0 of this Permit, as approved pursuant to Permit Condition III.10.C.3., except Permit Conditions III.10.H.3.c.ii. through iv. also apply.

ii. The Permittees shall not feed mixed waste to the LAW Vitrification System.

iii. The dangerous waste feed-rates to the LAW Vitrification System shall not exceed the limits in Permit Tables III.10.H.D and F, as approved/modified pursuant to Permit Condition III.10.H.5.

iv. The Permittees shall conduct sufficient analysis of the dangerous waste treated in the LAW Vitrification System to verify that the dangerous waste is within the physical and chemical composition limits specified in this Permit.

III.10.H.3.d. Demonstration Data Submissions and Certifications

i. The Permittees shall submit a summary of data collected as required by the Demonstration Test Plan to Ecology upon completion of the Demonstration Test. The Permittees shall submit to Ecology a complete demonstration test report within one-hundred twenty (120) calendar days of completion of the Demonstration Test including all data collected during the Demonstration Test and updated Permit Tables III.10.I.D, III.10.I.E and III.10.I.F.

ii. The Permittees must submit to Ecology a certification that the Demonstration Test has been carried out in accordance with the approved Demonstration Test Plan and approved modifications within thirty (30) days of the completion of the Demonstration Test [WAC 173-303-807(8)].

iii. After successful completion of the Demonstration Test, the Permittees shall be authorized to commence feed of dangerous waste and mixed waste to the LAW Vitrification System – up to one melter at maximum feed-rates for the post-demonstration test period indicated in Permit Tables III.10.H.D and F, as approved/modified pursuant to Permit Condition III.10.H.5., in compliance with the operating requirements specified in Permit Condition III.10.H.1.c.

iv. After successful completion of the Demonstration Test, Permittees submittal of the following to Ecology, and the Permittees' receipt of Ecology approval of the following, in writing, the Permittees shall be authorized to commence dangerous waste and mixed waste to the LAW Vitrification System – up to two melters at maximum feed-rates for the post-demonstration test period indicated in Permit Tables III.10.H.D and F, as approved/modified pursuant to Permit Condition III.10.H.5., in compliance with the operating requirements specified in Permit Condition III.10.H.1.c.:

A. Calculations and analytical data showing compliance with the performance standard specified in Permit Condition III.10.H.1.b.i.

v. After successful completion of the Demonstration Test, Permittees submittal of the following to Ecology and the Permittees receipt of approval of the following in writing, the Permittees shall be authorized to feed dangerous waste and mixed waste to the LAW Vitrification System pursuant to Permit Section III.10.I.

A. A complete Demonstration Test Report for the LAW Vitrification System and updated Permit Tables III.10.I.D, III.10.I.E, and III.10.I.F, as approved/modified pursuant to Permit Conditions III.10.H.5 and III.10.C.11.c or III.10.C.11.d. The test report shall be certified in accordance with WAC 173-303-807(8), in accordance with WAC 173-303-680(2) and (3).

B. A Final Risk Assessment Report completed pursuant to Permit Conditions III.10.C.11.c. or III.10.C.11.d.

vi. If any calculations or testing results show that one or more of the performance standards listed in Permit Condition III.10.H.1.b., with the exception of Permit Condition III.10.H.1.b.x., for the LAW Vitrification System were not met during the Demonstration Test, the Permittees shall perform the following actions:

A. Immediately stop dangerous and mixed waste feed to the LAW Vitrification System under the mode of operation that resulted in not meeting the performance standard(s).

B. Verbally notify Ecology within twenty-four (24) hours of discovery of not meeting the performance standard(s) as specified in Permit Condition I.E.21.

C. Investigate the cause of the failure and submit a report of the investigation findings to Ecology within fifteen (15) days of discovery of not meeting the performance standard(s).

D. Submit to Ecology within fifteen (15) days of discovery of not meeting the performance standard(s), documentation supporting a mode of operation where all performance standards listed in Permit Condition III.10.H.1.b., with the exception of Permit Condition III.10.H.1.b.x., for the LAW Vitrification System were met during the demonstration test, if any such mode was demonstrated.

E. Based on the information provided to Ecology by the Permittees pursuant to Permit Conditions III.10.H.3.d.vi.A through D above, and any additional information, Ecology may submit in writing, direction to the Permittees to stop dangerous and/or mixed waste feed to the LAW Vitrification System and/or amend the mode of operation the Permittees are allowed to continue operations prior to Ecology approval of a compliance schedule and/or revised Demonstration Test Plan pursuant to Permit Conditions III.10.H.3.d.vi.F and G.

F. If the performance standard listed in Permit Condition III.10.H.1.b.i. was not met during the Demonstration Test, the Permittees shall submit within one hundred and twenty (120) days of discovery of not meeting the performance standard, a revised Demonstration Test Plan (if appropriate), and a compliance schedule for Ecology

approval to address this deficiency. If a revised Demonstration Test Plan is submitted, it shall be accompanied by a request for approval to retest as a permit modification pursuant to Permit Conditions III.10.C.2.e. and III.10.C.2.f. The revised Demonstration Test Plan (if submitted) must include substantive changes to prevent failure from reoccurring.

G. If any of the performance standards listed in Permit Condition III.10.H.1.b., with the exception of Permit Conditions III.10.H.1.b.i. or III.10.H.1.b.x., were not met during the Demonstration Test the Permittees shall submit to Ecology within one hundred twenty (120) days of discovery of not meeting the performance standard(s), a revised Demonstration Test Plan requesting approval to retest as a permit modification pursuant to Permit Conditions III.10.C.2.e. and III.10.C.2.f. The revised Demonstration Test Plan must include substantive changes to prevent failure from reoccurring.

vii. If any calculations or testing results show that any emission rate for any constituent listed in Permit Table III.10.H.E, as approved pursuant to Permit Condition III.10.C.11.b., is exceeded for LAW Vitrification System during the Demonstration Test, the Permittees shall perform the following actions:

A. Verbally notify Ecology within twenty-four (24) hours of the discovery of exceeding the emission rate(s) as specified in Permit Condition I.E.21.

B. Submit to Ecology additional risk information to indicate that the increased emissions impact is offset by decreased emission impact from one or more constituents expected to be emitted at the same time, and/or investigate the cause and impact of the exceedance of the emission rate(s) and submit a report of the investigation findings to Ecology within fifteen (15) days of the discovery of exceeding the emission rate(s); and

C. Based on the notification and any additional information, Ecology may submit, in writing, direction to the Permittees to stop dangerous and/or mixed waste feed to the LAW Vitrification System and/or to submit a revised Demonstration Test Plan as a permit modification pursuant to Permit Conditions III.10.C.2.e. and III.10.C.2.f., or III.10.C.2.g. The revised Demonstration Test Plan must include substantive changes to prevent failure from reoccurring.

III.10.H.4. Post Demonstration Test Period [WAC 173-303-670(5), WAC 173-303-670(6), and WAC 173-303-807(2), in accordance with WAC 173-303-680(2) and (3)]

III.10.H.4.a. The Permittees shall operate, monitor, and maintain the LAW Vitrification System as specified in Permit Condition III.10.H.1. and Attachment 51, Appendix 9.15 of this Permit, as approved pursuant to Permit Condition III.10.H.5., except as modified in accordance with Permit Conditions III.10.H.1.b.xii., III.10.H.3., and III.10.H.4.

III.10.H.4.b. Allowable Waste Feed During the Post-Demonstration Test Period

i. The Permittees may feed the dangerous and/or mixed waste specified for the LAW Vitrification System on the Part A Forms (Attachment 51, Chapter 1.0 of this Permit), except for those wastes outside the waste acceptance criteria specified in the WAP,

Attachment 51, Chapter 3.0 of this Permit, as approved pursuant to Permit Condition III.10.C.3., and except Permit Conditions III.10.H.4.b.ii. and III.10.H.4.b.iii. also apply.

ii. The dangerous waste and mixed waste feed-rates to the LAW Vitrification System shall not exceed the limits in Permit Tables III.10.H.D and F, as approved/modified pursuant to Permit Condition III.10.H.5., or in Permit Condition III.10.H.3

iii. The Permittees shall conduct sufficient analysis of the dangerous waste and mixed waste treated in LAW Vitrification System to verify that the waste feed is within the physical and chemical composition limits specified in this Permit.

III.10.H.5. Compliance Schedules

III.10.H.5.a. All information identified for submittal to Ecology in a. through f. of this compliance schedule must be signed and certified in accordance with requirements in WAC 173-303-810(12), as modified in accordance with Permit Condition III.10.H.1.a.iii. [WAC 173-303-806(4)].

III.10.H.5.b. The Permittees shall submit to Ecology, pursuant to Permit Condition III. 10.C.9.f., prior to construction of each secondary containment and leak detection system for the LAW Vitrification System (per level) as identified in Permit Tables III.10.H.A and III.10.H.B, engineering information as specified below, for incorporation into Attachment 51, Appendices 9.2 , 9.4, 9.5, 9.7, 9.8, 9.9, 9.11, and 9.12 of this Permit. At a minimum, engineering information specified below will show the following as described in WAC 173-303-640, in accordance with WAC 173-303-680 (the information specified below will include dimensioned engineering drawings and information on sumps and floor drains):

i. IQRPE Reports (specific to foundation, secondary containment, and leak detection system) shall include review of design drawings, calculations, and other information on which the certification report is based and shall include as applicable, but not limited to, review of such information described below. Information (drawings, specifications, etc.) already included in Attachment 51, Appendix 9.0 of this Permit, may be included in the report by reference and should include drawing and document numbers. IQRPE Reports shall be consistent with the information separately provided in ii. through ix. below [WAC 173-303-640(3)(a), in accordance with WAC 173-303-680 and WAC 173-303-806(4)(i)(i)];

ii. Design drawings (General Arrangement Drawings, in plan and cross sections) and specifications for the foundation, secondary containment including liner installation details, and leak detection methodology. These items should show the dimensions, volume calculations, and location of the secondary containment system, and should include items such as floor/pipe slopes to sumps, tanks, floor drains [WAC 173-303-640(4)(b) through (f) and WAC 173-303-640(3)(a), in accordance with WAC 173-303-680 and WAC 173-303-806(4)(i)(i)];

iii. The Permittees shall provide the design criteria (references to codes and standards, load definitions, and load combinations, materials of construction, and analysis/design methodology) and typical design details for the support of the secondary containment system. This information shall demonstrate the foundation will be capable of providing

support to the secondary containment system, resistance to pressure gradients above and below the system, and capable of preventing failure due to settlement, compression, or uplift [WAC 173-303-640(4)(c)(ii), in accordance with WAC 173-303-680(2) and WAC 173-303-806(4)(i)(i)(B)];

iv. A description of materials and equipment used to provide corrosion protection for external metal components in contact with soil, including factors affecting the potential for corrosion [WAC 173-303-640(3)(a)(iii)(B), in accordance with WAC 173-303-680 and WAC 173-303-806(4)(i)(i)(A) through (B)];

v. Secondary containment/foundation, and leak detection system, materials selection documentation (including, but not limited to, concrete coatings and water stops, and liner materials) as applicable [WAC 173-303-806(4)(i)(i)(A) through (B)];

vi. Detailed description of how the secondary containment for the LAW Vitrification System will be installed in compliance with WAC 173-303-640(3)(c), in accordance with WAC 173-303-680 and WAC 173-303-806(4)(i)(i)(A) through (B);

vii. Submit Permit Tables III.10.H.B and III.10.I.B completed to provide for all secondary containment sumps and floor drains the information as specified in each column heading consistent with information to be provided in i. through vi., above;

viii. Documentation that secondary containment and leak detection systems will not accumulate hydrogen gas levels above the lower explosive limit for incorporation into the Administrative Record [WAC 173-303-680, WAC 173-303-806(4)(i)(i)(A), and WAC 173-303-806(4)(i)(v)];

ix. A detailed description of how LAW Vitrification System design provides access for conducting future LAW Vitrification System integrity assessments [WAC 173-303-640(3)(b) and WAC 173-303-806(4)(i)(i)(B)].

III.10.H.5.c. The Permittees shall submit to Ecology, pursuant to Permit Condition III.10.C.9.f, prior to installation of each sub-system as identified in Permit Table III.10.H.A, engineering information as specified below, for incorporation into Attachment 51, Appendices 9.1 through 9.14, and 9.17 of this Permit. At a minimum, engineering information specified below will show the following, as required pursuant to WAC 173-303-640, in accordance with WAC 173-303-680 (the information specified below will include dimensioned engineering drawings):

i. IQRPE Reports (specific to sub-system) shall include review of design drawings, calculations, and other information on which the certification report is based and shall include as applicable, but not limited to, review of such information described below. Information (drawings, specifications, etc.) already included in Attachment 51, Appendix 9.0 of this Permit, may be included in the report by reference and should include drawing and document numbers. The IQRPE Reports shall be consistent with the information separately provided in ii. through xii. below, and the IQRPE Report specified in Permit Condition III.10.H.5.b. [WAC 173-303-640(3)(a), in accordance with WAC 173-303-680(2) and WAC 173-303-806(4)(i)(i)];

ii. Design drawings [General Arrangement Drawings in plan and cross section, Process Flow Diagrams, Piping and Instrumentation Diagrams (including pressure control systems), Mechanical Drawings, and specifications, and other information specific to subsystems (to show location and physical attributes of each subsystem)] [WAC 173-303-640(3)(a), in accordance with WAC 173-303-680(2) and WAC 173-303-806(4)(i)(i)];

iii. Sub-system design criteria (references to codes and standards, load definitions, and load combinations, materials of construction, and analysis/design methodology) and typical design details to support the subsystems. Structural support calculations specific to off-specification, non-standard and field fabricated subsystems shall be submitted for incorporation into the Administrative Record. Documentation shall include but not limited to, supporting specifications, test data, treatment effectiveness report, etc. supporting projected operational capability (e.g., WESP projected removal efficiency for individual metals, halogens, particulates, etc.) and compliance with performance standards specified in Permit Condition III.10.H.1.b [WAC 173-303-640(3)(a), in accordance with WAC 173-303-680(2) and WAC 173-303-806(4)(i)(i)(B)];

iv. A description of materials and equipment used to provide corrosion protection for external metal components in contact with water, including factors affecting the potential for corrosion [WAC 173-303-640(3)(a)(iii)(B), in accordance with WAC 173-303-680(2) and WAC 173-303-806(4)(i)(i)(A) through (B)];

v. Sub-system materials selection documentation (e.g., physical and chemical tolerances) [WAC 173-303-640(3)(a), in accordance with WAC 173-303-680(2) and WAC 173-303-806(4)(i)(i)(A)];

vi. Sub-system vendor information (including, but not limited to, required performance warranties, as available), consistent with information submitted under ii. above, shall be submitted for incorporation into the Administrative Record [WAC 173-303-640(3)(a), in accordance with WAC 173-303-680(2), WAC 173-303-806(4)(i)(i)(A) through (B), and WAC 173-303-806(4)(i)(v)];

vii. System descriptions (process) related to sub-system units shall be submitted for incorporation into the Administrative Record [WAC 173-303-680, WAC 173-303-806(4)(i)(i)(A) through (B), and WAC 173-303-806(4)(i)(v)];

viii. Mass and energy balance for normal projected operating conditions used in developing the Piping and Instrumentation Diagrams and Process Flow Diagrams, including assumptions and formulas used to complete the mass and energy balance, so that they can be independently verified for incorporation into the Administrative Record [WAC 173-303-680(2), WAC 173-303-806(4)(i)(i)(B), and WAC 173-303-806(4)(i)(v)];

ix. Detailed description of all potential LAW Vitrification System bypass events including:

A. A report which includes an analysis of credible potential bypass events and recommendations for prevention/minimization of the potential, impact, and frequency of the bypass event to include at a minimum:

1. Operating procedures

2. Maintenance procedures
3. Redundant equipment
4. Redundant instrumentation
5. Alternate equipment
6. Alternate materials of construction

x. A detailed description of how the sub-systems will be installed in compliance with WAC 173-303-640(3)(c), (d), and (e), in accordance with WAC 173-303-680 and WAC 173-303-806(4)(i)(i)(B);

xi. Sub-system design to prevent escape of vapors and emissions of acutely or chronically toxic (upon inhalation) EHW, for incorporation into the Administrative Record [WAC 173-303-640(5)(e), in accordance with WAC 173-303-680(2) and WAC 173-303-806(4)(i)(i)(B)];

xii. Documentation that sub-systems are designed to prevent the accumulation of hydrogen gases levels above the lower explosive limit for incorporation into the Administrative Record [WAC 173-303-680, WAC 173-303-806(4)(i)(i)(A), and WAC 173-303-806(4)(i)(v)].

III.10.H.5.d. The Permittees shall submit to Ecology, pursuant to Permit Condition III.10.C.9.f, prior to installation of equipment for each sub-system as identified in Permit Tables III.10.H.A and III.10.H.B, not addressed in Permit Conditions III.10.H.5.b. or III.10.H.5.c., engineering information as specified below, for incorporation into Attachment 51, Appendices 9.1 through 9.14 of this Permit. At a minimum, engineering information specified below will show the following as required pursuant to WAC 173-303-640, in accordance with WAC 173-303-680 (the information specified below will include dimensioned engineering drawings):

i. IQRPE Reports (specific to sub-system equipment) shall include a review of design drawings, calculations, and other information as applicable on which the certification report is based. The reports shall include, but not be limited to, review of such information described below. Information (drawings, specifications, etc.) already included in Attachment 51, Appendix 9.0 of this Permit, may be included in the report by reference and should include drawing and document numbers. The IQRPE Reports shall be consistent with the information provided separately in ii. through ~~xii.~~ xiii. below and the IQRPE Reports specified in Permit Conditions III.10.H.5.b. and III.10.H.5.c. [WAC 173-303-640(3)(a), in accordance with WAC 173-303-680(2) and WAC 173-303-806(4)(i)(i)(A) through (B)];

ii. Design drawings [Process Flow Diagrams, Piping and Instrumentation Diagrams (including pressure control systems), specifications and other information specific to equipment (these drawings should include all equipment such as pipes, valves, fittings, pumps, instruments, etc.)] [WAC 173-303-640(3)(a), in accordance with WAC 173-303-680(2) and WAC 173-303-806(4)(i)(i)(A) through (B)];

iii. Sub-system equipment design criteria (references to codes and standards, load definitions, and load combinations, materials of construction, and analysis/design methodology) and typical design details for the support of the sub-system equipment [WAC 173-303-640(3)(a) and WAC 173-303-640(3)(f), in accordance with WAC 173-303-680 and WAC 173-303-806(4)(i)(i)(B)];

iv. A description of materials and equipment used to provide corrosion protection for external metal components in contact with soil and water, including factors affecting the potential for corrosion [WAC 173-303-640(3)(a)(iii)(B), in accordance with WAC 173-303-680(2) and WAC 173-303-806(4)(i)(i)(A)];

v. Materials selection documentation for equipment for each sub-system (e.g., physical and chemical tolerances) [WAC 173-303-640(3)(a), in accordance with WAC 173-303-680(2) and WAC 173-303-806(4)(i)(i)(A)];

vi. Vendor information (including, but not limited to, required performance warranties, as available), consistent with information submitted under ii. above, for sub-system equipment shall be submitted for incorporation into the Administrative Record. [WAC 173-303-640(3)(a), in accordance with WAC 173-303-680(2), WAC 173-303-806(4)(i)(i)(A) through (B), and WAC 173-303-806(4)(i)(iv)];

vii. Sub-system, ~~and~~ sub-system equipment, ~~instrument~~ and leak detection system instrument control logic narrative description (e.g., software functional specifications, descriptions of fail-safe conditions, etc.) [WAC 173-303-680(2), WAC 173-303-806(4)(i)(i)(B), and WAC 173-303-806(4)(i)(v)].

viii. System description (process) related to sub-system equipment, and system descriptions related to leak detection systems, (including instrument control logic and narrative descriptions), for incorporation into the Administrative Record [WAC 173-303-680, WAC 173-303-806(4)(i)(i)(A) through (B), and WAC 173-303-806(4)(i)(v)];

ix. A detailed description of how the sub-system equipment will be installed and tested [WAC 173-303-640(3)(c) through (e), WAC 173-303-640(4)(b) and (c), in accordance with WAC 173-303-680 and WAC 173-303-806(4)(i)(i)(B)];

x. For process monitoring, ~~and~~ control, and leak detection system instrumentation for the LAW Vitrification System as identified in Permit Tables III.10.H.C. and III.10.H. F., a detailed description of how the process monitoring, ~~and~~ control, and leak detection system instrumentation, will be installed and tested [WAC 173-303-640(3)(c) through (e), WAC 173-303-640(4)(b) and (c), WAC 173-303-806(4)(c)(vi), and WAC 173-303-806(4)(i)(i)(B)];

xi. Mass and energy balance for projected normal operating conditions used in developing the Piping and Instrumentation Diagrams and Process Flow Diagrams, including assumptions and formulas used to complete the mass and energy balance, so that they can be independently verified, for incorporation into the Administrative Record [WAC 173-303-680(2), WAC 173-303-806(4)(i)(i)(B), and WAC 173-303-806(4)(i)(v)];

xii. Documentation that sub-systems equipment are designed to prevent the accumulation of hydrogen gas levels above the lower explosive limit for incorporation into the

Administrative Record [WAC 173-303-680, WAC 173-303-806(4)(i)(i)(A), and WAC 173-303-806(4)(i)(v)];

xiii. Leak detection system documentation (e.g. vendor information, etc.) consistent with information submitted under Permit Condition III.10.H.5.c.ii. and Permit Conditions III.10.H.5.d.ii., vii., viii., and x. above, shall be submitted for incorporation into the Administrative Record.

III.10.H.5.e. Prior to initial receipt of dangerous and/or mixed waste in the WTP Unit, the Permittees shall submit to Ecology, pursuant to Permit Condition III.10.C.9.f., the following as specified below for incorporation into Attachment 51, Appendix 9.18 of this Permit, except Permit Condition III.10.H.5.e.i., which will be incorporated into Attachment 51, Chapter 6.0 of this Permit. All information provided under this permit condition must be consistent with information provided pursuant to Permit Conditions III.10.H.5.b., c., d., e., and f., III.10.C.3.e. and III.10.C.11.b., as approved by Ecology:

i. Integrity assessment program and schedule for the LAW Vitrification System shall address the conducting of periodic integrity assessments on the LAW Vitrification System over the life of the system, as specified in Permit Condition III.10.H.5.b.ix. and WAC 173-303-640(3)(b), in accordance with WAC 173-303-680, and descriptions of procedures for addressing problems detected during integrity assessments. The schedule must be based on past integrity assessments, age of the system, materials of construction, characteristics of the waste, and any other relevant factors [WAC 173-303-640(3)(b), in accordance with WAC 173-303-680 and WAC 173-303-806(4)(i)(i)(B)].

ii. Detailed plans and descriptions, demonstrating the leak detection system is operated so that it will detect the failure of either the primary or secondary containment structure or the presence of any release of dangerous and/or mixed waste or accumulated liquid in the secondary containment system within twenty-four (24) hours [WAC 173-303-640(4)(c)(iii)]. Detection of a leak of at least 0.1 gallons per hour within twenty-four (24) hours is defined as being able to detect a leak within twenty-four (24) hours. Any exceptions to this criteria must be approved by Ecology in accordance with WAC 173-303-680, WAC 173-303-640(4)(c)(iii), and WAC 173-303-806(4)(i)(i)(b).

iii. Detailed operational plans and descriptions, demonstrating that spilled or leaked waste and accumulated liquids can be removed from the secondary containment system within twenty-four (24) hours [WAC 173-303-806(4)(i)(i)(B)].

iv. Descriptions of operational procedures demonstrating appropriate controls and practices are in place to prevent spills and overflows from the LAW Vitrification System or containment systems in compliance with WAC 173-303-640(5)(b)(i) through (iii), in accordance with WAC 173-303-680 and WAC 173-303-806(4)(i)(i)(B);

v. Description of procedures for investigation and repair of the LAW Vitrification System [WAC 173-303–640(6) and WAC 173-303-640(7)(e) and (f), in accordance with WAC 173-303-680, WAC 173-303-320, WAC 173-303-806(4)(a)(v), and WAC 173-303-806(4)(a)(ii)(B)].

vi. Updated Chapter 4.0, Narrative Description, Tables and Figures as identified in Permit Tables III.10.H.A and III.10.H.B, as modified pursuant to Permit Condition III.10.H.5.e.x. and updated to identify routinely non-accessible LAW Vitrification sub-systems.

vii. Description of procedures for management of ignitable and reactive, and incompatible dangerous and/or mixed waste as specified in WAC 173-303-640(9) and (10), in accordance with WAC 173-303-680 and WAC 173-303-806(4)(i)(i)(B).

viii. A description of the tracking system used to track dangerous and/or mixed waste generated throughout the LAW Vitrification system, pursuant to WAC 173-303-380.

ix. Permit Tables III.10.H.C and III.10.I.C shall be completed for LAW Vitrification System process and leak detection system monitors and instruments (to include, but not be limited to: instruments and monitors measuring and/or controlling flow, pressure, temperature, density, pH, level, humidity, and emissions) to provide the information as specified in each column heading. Process and leak detection system monitors and instruments for critical systems as specified in Attachment 51, Appendix 2.0 and as updated pursuant to Permit Condition III.10.C.9.b., and for operating parameters as required to comply with Permit Condition III.10.C.3.e.iii. shall be addressed. Process monitors and instruments for non-waste management operations (e.g., utilities, raw chemical storage, non-contact cooling waters, etc.) are excluded from this permit condition [WAC 173-303-680, WAC 173-303-806(4)(i)(i)(A) through (B), and WAC 173-303-806(4)(i)(v)];

x. Permit Tables III.10.H.A and III.10.I.A amended as follows [WAC 173-303-680 and WAC 173-303-806(4)(i)(i)(A) through (B)]:

A. Under column 1, update and complete list of dangerous and mixed waste LAW Vitrification System sub-systems, including plant items that comprise each system (listed by item number).

B. Under column 2, update and complete system designations.

C. Under column 3, replace the 'Reserved' with Attachment 51, Appendix 9.0 subsections (e.g., 9.1, 9.2, etc.) designated in Permit Conditions III.10.H.5.b., c., and d. specific to LAW Vitrification System sub-system as listed in column 1.

D. Under column 4, update and complete list of narrative description, tables, and figures.

III.10.H.5.f. One hundred and eighty (180) days prior to initial receipt of dangerous and/or mixed waste in the WTP Unit, the Permittees shall submit for review and receive approval for incorporation into Attachment 51, Appendix 9.15 of this Permit, a Demonstration Test Plan for the LAW Vitrification System to demonstrate that the LAW Vitrification Systems meets the performance standards specified in Permit Condition III.10.H.1.b. In order to incorporate the Demonstration Test Plan for the LAW Vitrification System into Attachment 51, Appendix 9.15, Permit Condition III.10.C.2.g. process will be followed. The Demonstration Test Plan shall include, but not be limited to, the following information. The Demonstration Test Plan shall also be consistent with the information provided pursuant to Permit Conditions

III.10.H.5.b., c., d., and e., III.10.C.3.e., and III.10.C.11.b., as approved by Ecology and consistent with the schedule described in Attachment 51, Appendix 1.0 of this Permit. The documentation required pursuant to Permit Condition III.10.H.5.f.x., in addition to being incorporated into Attachment 51, Appendix 9.15, shall be incorporated by reference in Attachment 51, Chapter 6.0 of this Permit.

Notes: (1) The following should be consulted to prepare this Demonstration Test Plan: "Guidance on Setting Permit Conditions and Reporting Trial Burn Results Volume II of the Hazardous Waste Incineration Guidance Series," (EPA/625/6-89/019) and Risk Burn Guidance For Hazardous Waste Combustion Facilities," (EPA-R-01-001, July 2001), WAC 173-303-807(2), WAC 173-303-670(5), WAC-173-303-670(6), 40 CFR §63.1207(f)(2), 40 CFR §63.1209, and Appendix to 40 CFR Part 63 EEE.

(2) Cross-referencing to the information provided pursuant to permit Conditions III.H.5.b., c., d., e., and III.10.C.3.e.v., as approved by Ecology, that are redundant to elements of the Demonstration Test Plan for the LAW Vitrification System is acceptable.

i. Analysis of each feed-stream to be fed during the demonstration test, including dangerous waste, glass formers and reductants, process streams (e.g., volumes of air leakage including~~,~~ control air, process air, steam, sparge bubbler air, air in-leakage from melter cave, and gases from LAW Vitrification Vessel Ventilation System, process water, etc.) that includes:

   A. Levels of ash, metals, total chlorine (organic and inorganic), other halogens and radionuclide surrogates;

   B. Description of the physical form of the feed-streams;

   C. An identification and quantification of organics that are present in the feed-stream, including constituents proposed for DRE demonstration;

   A comparison of the proposed demonstration test feed streams to the mixed waste feed envelopes to be processed in the melters must be provided that documents that the proposed demonstration test feed streams will serve as worst case surrogates for organic destruction, formation of products of incomplete oxidation, and metals, total chlorine (organic and inorganic), other halogens, particulate formation, and radionuclides.

ii. Specification of trial principal organic dangerous constituents (PODCs) for which destruction and removal efficiencies are proposed to be calculated during the demonstration test and for inclusion in Permit Conditions III.10.H.1.b.i. and III.10.I.1.b.i. These trial PODCs shall be specified based on destructibility, concentration or mass in the waste and the dangerous waste constituents or constituents in WAC 173-303-9905;

iii. A description of the blending procedures, prior to introducing the feed-streams into the melter, including analysis of the materials prior to blending, and blending ratios;

iv. A description of how the surrogate feeds are to be introduced for the demonstration. This description should clearly identify the differences and justify how any of

differences would impact the surrogate feed introduction as representative of how mixed waste feeds will be introduced;

v. A detailed engineering description of the LAW Vitrification System, including:

A. Manufacturer's name and model number for each sub-system;

B. Design capacity of each sub-system including documentation (engineering calculations, manufacturer/vendor specifications, operating data, etc.) supporting projected operational efficiencies (e.g., WESP projected removal efficiency for individual metals, halogens, particulates, etc.) and compliance with performance standards specified in Permit Condition III.10.H.1.b.;

C. Detailed scaled engineering drawings, including Process Flow Diagrams, Piping and Instrumentation Diagrams, Vessel Drawings (plan, and elevation with cross sections) and General Arrangement Drawings;

D. Process Engineering Descriptions;

E. Mass and energy balance for each projected operating condition and each demonstration test condition, including assumptions and formulas used to complete the mass and energy balance, so that they can be independently verified for incorporation into the Administrative Record;

F. Engineering Specifications/data sheets (materials of construction, physical and chemical tolerances of equipment, and fan curves);

G. Detailed Description of Automatic Waste Feed Cutoff System addressing critical operating parameters for all performance standards specified in Permit Condition III.10.H.1.b.;

H. Documentation to support compliance with performance standards specified in Permit Condition III.10.H.1.b.**,** including engineering calculations, test data, and manufacturer/vendor's warranties, etc.;

I. Detailed description of the design, operation, and maintenance practices for air pollution control system;

J. Detailed description of the design, operation, and maintenance practices of any stack gas monitoring and pollution control monitoring system;

K. Documentation based on current WTP Unit design either confirming the Permittees' demonstration that it is not technically appropriate to correct standards listed in Permit Conditions III.H.1.b.ii. through III.H.1.b.ix. to seven (7) percent oxygen,. or a request, pursuant to Permit Conditions III.10.C.9.e. and III.10.C.9.f., to update Permit Conditions III.H.1.b.ii. through III.H.1.b.ix., III.I.b.ii. through III.I.b.ix., III.I.1.e.iii., and III.H.1.e.iii., Permit Tables III.10.H.C, III.10.H.F, III.10.I.C., III.10.I.F.and Attachment 51, Appendix 9.0 to reflect the addition of an oxygen monitor and the correction of the standards to seven percent (7%) oxygen.

vi. Detailed description of sampling and monitoring procedures including sampling and monitoring locations in the system, the equipment to be used, sampling and monitoring

frequency, and planned analytical procedures for sample analysis including, but not limited to:

A. A short summary narrative description of each stack sample method should be included within the main body of the demonstration test plan, which references an appendix to the plan that would include for each sampling train: (1) detailed sample method procedures, (2) sampling train configuration schematic, (3) sampling recovery flow sheet, (4) detailed analytical method procedures, and (5) sampling preparation and analysis flow sheet. The detailed procedures should clearly flag where the method has provided decision points (e.g., choices of equipment materials of construction, choices of clean-up procedures or whether additional clean-up procedures will be incorporated, whether pretest surveys or laboratory validation work will be performed, enhancements to train to accommodate high moisture content in stack gas, etc.) and what is being proposed along with the basis for the decision.

B. A short summary narrative description of the feed and residue sampling methods should be included within the main body of the demonstration test plan, which references an appendix that would include for each sample type: (1) detailed sample method procedures, (2) sampling recovery/compositing procedures, and (3) detailed analytical method procedures. The detailed procedures should clearly flag where the method has provided decision points (e.g., choices of equipment materials of construction, choices of clean-up procedures or whether additional clean-up procedures will be incorporated, whether pretest surveys or laboratory validation work will be performed, etc.) and what is being proposed along with the basis for the decision

vii. A detailed test schedule for each condition for which the demonstration test is planned, including projected date(s), duration, quantity of dangerous waste to be fed, and other relevant factors;

viii. A detailed test protocol including, for each test condition, the ranges of feed-rate for each feed system, and all other relevant parameters that may affect the ability of the LAW Vitrification System to meet performance standards specified in Permit Condition III.10.H.1.b.;

ix. A detailed description of planned operating conditions for each demonstration test condition, including operating conditions for shakedown, demonstration test, post-demonstration test and normal operations. This information shall also include submittal of Permit Tables III.10.H.D, III.10.H.F, III.10.I.D, and III.10.I.F completed with the information as specified in each column heading for each LAW Vitrification System waste feed cutoff parameter and submittal of supporting documentation for Permit Tables III.10.H.D, III.10.H.F, III.10.I.D, and III.10.I.F set-point values;

x. The test conditions proposed must demonstrate meeting the performance standards specified in Permit Condition III.10.H.1.b. with the simultaneous operation of all three (3) melters at capacity and input from the LAW Vitrification Vessel Ventilation System at capacity to simulate maximum loading to the LAW Vitrification System off-gas

treatment system and to establish the corresponding operating parameter ranges. To the extent that operation of one (1) melter or two (2) melters can not be sustained within the operating parameter range established at this maximum load, additional demonstration test conditions must be included in the plan and performed to establish operating parameter ranges for each proposed operating mode while demonstrating meeting the performance standards specified in Permit Condition III.10.H.1.b.;

xi. Detailed description of procedures for start-up and shutdown of waste feed and controlling emissions in the event of an equipment malfunction, including off-normal and emergency shutdown procedures;

xii. A calculation of waste residence time;

xiii. Any request to extrapolate metal feed-rate limits from Demonstration Test levels must include:

A. A description of the extrapolation methodology and rationale for how the approach ensures compliance with the performance standards as specified in Permit Condition III.10.H.1.b.

B. Documentation of the historical range of normal metal feed-rates for each feedstream.

C. Documentation that the level of spiking recommended during the demonstration test will mask sampling and analysis imprecision and inaccuracy to the extent that extrapolation of feed-rates and emission rates from the Demonstration Test data will be as accurate and precise as if full spiking were used.

xiv. Documentation of the expected levels of constituents in LAW Vitrification System input streams including, but not limited to, waste feed, glass former and reactants, control air, process air, steam, sparge bubbler air, air in-Leakage from melter cave, gases from LAW Vitrification Vessel Ventilation System, and process water.

xv. Documentation justifying the duration of the conditioning required to ensure the LAW Vitrification System had achieved steady-state operations under Demonstration Test operating conditions.

xvi. Documentation of LAW Vitrification System process and leak detection system instruments and monitors as listed on Permit Tables III.10.H.C, III.10.H.F, III.10.I.C, and III.10.I.F to include:

A. Procurement specifications;

B. Location used;

C. Range, precision, and accuracy;

D. Detailed descriptions of calibration/functionality test procedures (either method number ASTM) or provide a copy of manufacturer's recommended calibration procedures;

E. Calibration/functionality test, inspection, and routine maintenance schedules and checklists, including justification for calibration, inspection and maintenance

frequencies, criteria for identifying instruments found to be significantly out of calibration, and corrective action to be taken for instruments found to be significantly out of calibration (e.g., increasing frequency of calibration, instrument replacement, etc.);

F. Equipment instrument control logic narrative description (e.g., software functional specifications, descriptions of fail safe conditions, etc.) [WAC 173-303-680(2), WAC 173-303-806(4)(i)(i)(B), and WAC 173-303-806(4)(i)(v)].

xvii. Outline of demonstration test report.

.

Table III.10.H.A - LAW Vitrification System Description

Sub-system Description	Sub-system Designation	Engineering Description (Drawing Nos., Specification Nos., etc.)	Narrative Description, Tables and Figures
Melter Feed [a] Systems-Melter 1,2, & 3	LFP LCP	RESERVED	Section 4.2.3.1; Tables 4-4 and 4-11, and Figures 4A-1, 4A-3, and 4A-20 of Attachment 51, Chapter 4 of this Permit
LAW Melters 1,2, & 3	LMP	RESERVED	Section 4.2.3.2; Tables 4-4, and Figure 4A-21 of Attachment 51, Chapter 4 of this Permit
LAW Glass Product Systems-Melter 1,2, & 3	LMP	RESERVED	Section 4.2.3.2 of Attachment 51, Chapter 4 of this Permit
Primary & Secondary Film Coolers-Melter 1, 2, & 3	LOP	RESERVED	Section 4.2.3.3 and Figure 4A-21 of Attachment 51, Chapter 4 of this Permit
Submerged Bed Scrubbers/Condensate Vessels [a]-Melter 1, 2, & 3	LOP	RESERVED	Section 4.2.3.3; Tables 4-4 and 4-11, and Figure 4A-22 of Attachment 51, Chapter 4 of this Permit
Wet electrostatic Precipitators-Melter 1, 2, & 3	LOP	RESERVED	Section 4.2.3.3 and Figure 4A-22 of Attachment 51, Chapter 4 of this Permit
High Efficiency Particulate Air Filters	LVP	RESERVED	Section 4.2.3.3 and Figure 4A-23 of Attachment 51, Chapter 4 of this Permit
Thermal Catalytical Oxidation Unit	LVP	RESERVED	Section 4.2.3.3 and Figure 4A-23 of Attachment 51, Chapter 4 of this Permit
Selective Catalytical Reduction Units	LVP	RESERVED	Section 4.2.3.3 and Figure 4A-23 of Attachment 51, Chapter 4 of this Permit
Caustic Scrubber/Blowdown Vessel [a]	LVP	RESERVED	Section 4.2.3.3 and Figure 4A-23 of Attachment 51, Chapter 4 of this Permit

Sub-system Description	Sub-system Designation	Engineering Description (Drawing Nos., Specification Nos., etc.)	Narrative Description, Tables and Figures
Electric Heaters	LVP	RESERVED	Section 4.2.3.3 and Figure 4A-23 of Attachment 51, Chapter 4 of this Permit
Heat Exchangers	LVP	RESERVED	Section 4.2.3.3 and Figure 4A-23 of Attachment 51, Chapter 4 of this Permit
Pumps	LVP	RESERVED	Section 4.2.3.3 and Figure 4A-23 of Attachment 51, Chapter 4 of this Permit
Exhaust Fans	LVP	RESERVED	Section 4.2.3.3 of Attachment 51, Chapter 4 of this Permit
Mist Eliminators	LVP	RESERVED	Section 4.2.3.3 of Attachment 51, Chapter 4 of this Permit
LAW Stack	LVP	RESERVED	Section 4.2.3.3 and Figure 4A-23 of Attachment 51, Chapter 4 of this Permit

[a.] Requirements pertaining to the tanks in LAW Vitrification System Melter Feed System, Submerged Bed Scrubbers/Condensate Vessels, and Caustic Scrubber/Blowdown Vessel are specified in Permit Section III.10.E.

Table III.10.H.B - LAW Vitrification System Secondary Containment Systems Including Sumps and Floor Drains

Sump/Floor Drain I.D.# & Room Location	Maximum Sump Capacity (gallons)	Sump Dimensions (feet) & Materials of Construction	Engineering Description (Drawing Nos., Specification Nos., etc.)	~~Leak Detection Type~~
RESERVED	RESERVED	RESERVED	RESERVED	~~RESERVED~~

Table III.10.H.C - LAW Vitrification System Process and Leak Detection System Instruments and ~~Process~~ Parameters

Sub-system Locator and Name (including P&ID)	Control Parameter	Type of Measuring or Leak Detection Instrument	Location of Measuring Instrument (Tag No.)	Instrument Range	Failure State	Expected Range	Instrument Accuracy	Instrument Calibration Method No. and Range
RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	RESERVED

Table III.10.H.D - Maximum Feed-rates to LAW Vitrification System (RESERVED)

Description of Waste	Shakedown 1 and Post Demonstration Test	Shakedown 2 and Demonstration Test
Dangerous and Mixed Waste Feed-rate		
Total Chlorine/Chloride Feed-rate		
Total Metal Feed-rates		
Total Ash Feed-rate		

Table III.10.H.E - LAW Vitrification System Estimated Emission Rates (RESERVED)

Chemicals	CAS Number	Emission Rates (grams /second)

TABLE III.10.H.F - LAW Vitrification System Waste Feed Cutoff Parameters* [1] (RESERVED)

Sub-system Designation	Instrument Tag Number	Parameter Description	Setpoints During Shakedown 1 and Post Demonstration Test	Setpoints During Shakedown 2 and Demonstration Test

* A continuous monitoring system shall be used as defined in Permit Section III.10.C.1.
[1] Maximum Feed-rate shall be set based on not exceeding any of the constituent (e.g., ash, metals, and chlorine/chloride) feed limits specified on Table III.10.H.D. of this Permit

III.10.I LAW Vitrification System – Long Term Miscellaneous Thermal Treatment Unit

For purposes of Permit Section III.10.I, where reference is made to WAC 173-303-640, the following substitutions apply: substitute the terms "LAW Vitrification System" for "tank system(s)," "sub-system(s)" for "tank(s)," "sub-system equipment" for "ancillary equipment," and "sub-system(s) or sub-system equipment of a LAW Vitrification System" for "component(s)," in accordance with WAC 173-303-680.

III.10.I.1 Requirements For LAW Vitrification System Beginning Normal Operation

Prior to commencing normal operations provided in Permit Section III.10.I, all requirements in Permit Section III.10.H shall have been met by the Permittees and approved by Ecology, including the following: The LAW Vitrification System Demonstration Test results and the revised Final Risk Assessment provided for in Permit Condition III.10.C.11.c. or III.10.C.11.d. and Permit Section III.10.H, shall have been evaluated and approved by Ecology, Permit Tables III.10.I.D and F, as approved/modified pursuant to Permit Condition III.10.H.5., shall have been completed, submitted and approved pursuant to Permit Condition III.10.H.3.d.v. and Permit Table III.10.I.E, as approved/modified pursuant to

Permit Condition III.10.H.5, shall have been completed, submitted and approved pursuant to Permit Condition III.10.C.11.c. or d.

III.10.I.1.a. Construction and Maintenance [WAC 173-303-640, in accordance with WAC 173-303-680(2) and (3) and WAC 173-303-340].

i. The Permittees shall maintain the design and construction of the LAW Vitrification System as specified in Permit Condition III.10.I.1., Attachment 51, Chapter 4.0 of this Permit, and Attachment 51, Appendices 9.1 through 9.17 of this Permit, as approved pursuant to Permit Conditions III.10.H.5.a. through d. and III.10.H.5.f.

ii. The Permittees shall maintain the design and construction of all containment systems for the LAW Vitrification System, as specified in Attachment 51, Chapter 4.0 of this Permit, and Attachment 51, Appendices 9.2 and 9.4 through 9.14 of this Permit, as approved pursuant to Permit Conditions III.10.H.5.a. through d.

iii. Modifications to approved design, plans, and specifications in Attachment 51 of this Permit for the LAW Vitrification System shall be allowed only in accordance with Permit Conditions III.10.C.2.e. and f., or III.10.C.2.g., III.10.C.9.d., e., and h.

iv. The Permittees shall ensure all certifications required by specialists (e.g., independent, qualified, registered professional engineer; registered professional engineer; independent corrosion expert; independent, qualified installation inspector; installation inspector; etc.) use the following statement or equivalent pursuant to Permit Condition III.10.C.10:

"I, (Insert Name) have (choose one or more of the following: overseen, supervised, reviewed, and/or certified) a portion of the design or installation of a new LAW Vitrification system or component located at (address), and owned/operated by (name(s)). My duties were: (e.g., installation inspector, testing for tightness, etc.), for the following LAW Vitrification System components (e.g., the venting piping, etc.), as required by the Dangerous Waste Regulations, namely, WAC 173-303-640(3) (applicable paragraphs [i.e., (a) through (g)], in accordance with WAC 173-303-680.

"I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment."

v. The Permittees shall ensure periodic integrity assessments are conducted on the LAW Vitrification System listed in Permit Table III.10.I.A, as approved/modified pursuant to Permit Condition III.10.H.5, over the term of this Permit in accordance with WAC 173-303-680(2) and (3) as specified in WAC 173-303-640(3)(b), following the description of the integrity assessment program and schedule in Attachment 51, Chapter 6.0 of this Permit, as approved pursuant to Permit Conditions III.10.H.5.e.i. and III.10.C.5.c. Results of the integrity assessments shall be included in the WTP Unit operating record

until ten (10) years after post closure, or corrective action is complete and certified, whichever is later.

vi. The Permittees shall address problems detected during the LAW Vitrification System integrity assessments specified in Permit Condition III.10.I.1.a.v. following the description of the integrity assessment program in Attachment 51, Chapter 6.0 of this Permit, as approved pursuant to Permit Conditions III.10.H.5.e.i. and III.10.C.5.c.

vii. All process monitors/instruments as specified in Permit Table III.10.I.F, as approved/modified pursuant to Permit Conditions III.10.H.5 and III.10.H.3.d.v., shall be equipped with operational alarms to warn of deviation, or imminent deviation from the limits specified in Permit Table III.10.I.F.

viii. The Permittees shall install and test all process and leak detection system monitors/instruments, as specified in Permit Tables III.10.I.C and III.10.I.F, as approved/modified pursuant to Permit Condition III.10.H.5 and III.10.H.3.d.v., in accordance with Attachment 51, Appendices 9.1, 9.2, and 9.14 ~~and 9.15~~ of this Permit, as approved pursuant to Permit Conditions III.10.H.5.d.x. and III.10.H.5.f..xvi.

ix. No dangerous and/or mixed waste shall be treated in the LAW Vitrification System unless the operating conditions, specified under Permit Condition III.10.I.1.c. are complied with.

x. The Permittees shall not place dangerous and/or mixed waste, treatment reagents, or other materials in the LAW Vitrification System if these substances could cause the sub-system, sub-system equipment, or the containment system to rupture, leak, corrode, or otherwise fail [WAC 173-303-640(5)(a), in accordance with WAC 173-303-680(2)]. This condition is not applicable to corrosion of LAW Vitrification System sub-system or sub-system equipment that are expected to be replaced as part of normal operations (e.g., melters).

xi. The Permittees shall operate the LAW Vitrification System to prevent spills and overflows using description of controls and practices as required under WAC 173-303-640(5)(b), described in Permit Condition III.10.C.5 and Attachment 51, Appendix 9.18 of this Permit, as approved pursuant to Permit Condition III.10.H.5.e. [WAC 173-303-640(5)(b), in accordance with WAC 173-303-680(2) and (3), and WAC 173-303-806(4)(c)(ix)].

xii. For routinely non-accessible LAW Vitrification System sub-systems, as specified in Attachment 51, Chapter 4.0 of this Permit, as updated pursuant to Permit Condition III.10.H.5.e.vi., the Permittees shall mark all routinely non-accessible LAW Vitrification System sub-systems access points with labels or signs to identify the waste contained in each LAW Vitrification System sub-system. The label, or sign, must be legible at a distance of at least fifty (50) feet and must bear a legend which identifies the waste in a manner which adequately warns employees, emergency response personnel, and the public of the major risk(s) associated with the waste being stored or treated in the LAW Vitrification System sub-systems. For the purposes of this permit condition, “routinely non-accessible” means personnel are unable to enter these areas

while waste is being managed in them [WAC 173-303-640(5)(d), in accordance with WAC 173-303-680(2)].

xiii. For the LAW Vitrification System sub-systems not addressed in Permit Condition III.10.I.1.a.xii., the Permittees shall mark these LAW Vitrification System sub-systems holding dangerous and/or mixed waste with labels or signs to identify the waste contained in the LAW Vitrification System sub-systems. The labels, or signs, must be legible at a distance of at least fifty (50) feet and must bear a legend which identifies the waste in a manner which adequately warns employees, emergency response personnel, and the public of the major risk(s) associated with the waste being stored or treated in the LAW Vitrification System sub-systems [WAC 173-303-640(5)(d), in accordance with WAC 173-303-680(2)].

xiv. The Permittees shall ensure that the secondary containment systems for the LAW Vitrification System sub-systems listed in Permit Tables III.10.I.A and III.10.I.B, as approved/modified pursuant to Permit Condition III.10.H.5, are free of cracks or gaps to prevent any migration of dangerous and/or mixed waste or accumulated liquid out of the system to the soil, groundwater, or surface water at any time during use of the LAW Vitrification System sub-systems. Any indication that a crack or gap may exist in the containment systems shall be investigated and repaired in accordance with Attachment 51, Appendix 9.18 of this Permit, as approved pursuant to Permit Condition III.10.H.5.e.v. [WAC 173-303–640(4)(b)(i), WAC 173-303-640(4)(e)(i)(C), and WAC 173-303-640(6), in accordance with WAC 173-303-680(2) and (3), WAC 173-303-806(4)(i)(i)(B), and WAC 173-303-320].

xv. The Permittees must immediately, and safely, remove from service any LAW Vitrification System or secondary containment system which through an integrity assessment is found to be "unfit for use" as defined in WAC 173-303-040, following Permit Condition III.10.I.1.a.xvii. A through D, and F. The affected LAW Vitrification System or secondary containment system must be either repaired or closed in accordance with Permit Condition III.10.I.1.a.xvii.E [WAC 173-303-640(7)(e) and (f) and WAC 173-303-640(8), in accordance with WAC 173-303-680(3)].

xvi. An impermeable coating, as specified in Attachment 51, Appendices 9.4, 9.5, 9.7, 9.9, 9.11, and 9.12 of this Permit, as approved pursuant to Permit Condition III.10.H.5.b.v., shall be maintained for all concrete containment systems and concrete portions of containment systems for the LAW Vitrification System sub-systems listed in Permit Tables III.10.I.A and III.10.I.B, as approved/modified pursuant to Permit Condition III.10.H.5 (concrete containment systems that do not have a liner, pursuant to WAC 173-303-640(4)(e)(i), in accordance with WAC 173-303-680(2), and have construction joints, shall meet the requirements of WAC 173-303-640(4)(e)(ii)(C), in accordance with WAC 173-303-680(2). The coating shall prevent migration of any dangerous and/or mixed waste into the concrete. All coatings shall meet the following performance standards:

A. The coating must seal the containment surface such that no cracks, seams, or other avenues through which liquid could migrate are present;

B. The coating must be of adequate thickness and strength to withstand the normal operation of equipment and personnel within the given area such that degradation or physical damage to the coating or lining can be identified and remedied before dangerous and mixed waste could migrate from the system; and

C. The coating must be compatible with the dangerous and/or mixed waste, treatment reagents, or other materials managed in the containment system [WAC 173-303-640(4)(e)(ii)(D), in accordance with WAC 173-303-680(2) and (3) and WAC 173-303-806(4)(i)(i)(A)].

xvii. The Permittees shall inspect all secondary containment systems for the LAW Vitrification System sub-systems listed in Permit Tables III.10.I.A and III.10.I.B, as approved/modified pursuant to Permit Condition III.10.H.5, in accordance with the Inspection Schedule specified in Attachment 51, Chapter 6.0 of this Permit, as approved pursuant to Permit Conditions III.10.H.5.e.i. and III.10.C.5.c., and take the following actions if a leak or spill of dangerous and/or mixed waste is detected in these containment systems [WAC 173-303-640(5)(c) and WAC 173-303-640(6), in accordance with WAC 173-303-680(2) and (3), WAC 173-303-320, and WAC 173-303-806(4)(i)(i)(B)].

A. Immediately, and safely, stop the flow of dangerous and/or mixed waste into the LAW Vitrification System sub-systems or secondary containment system.

B. Determine the source of the dangerous and/or mixed waste.

C. Remove the waste from the containment area in accordance with WAC 173-303-680(2) and (3) as specified in WAC 173-303-640(7)(b). The waste removed from containment areas of the LAW Vitrification System sub-systems shall be, as a minimum, managed as dangerous and/or mixed waste.

D. If the cause of the release was a spill that has not damaged the integrity of the LAW Vitrification System sub-system, the Permittees may return the LAW Vitrification System sub-system to service in accordance with WAC 173-303-680(2) and (3) as specified in WAC 173-303-640(7)(e)(ii). In such case, the Permittees shall take action to ensure the incident that caused the dangerous and/or mixed waste to enter the containment system will not reoccur.

E. If the source of the dangerous and/or mixed waste is determined to be a leak from the primary LAW Vitrification System into the secondary containment system, or the system is unfit for use as determined through an integrity assessment or other inspection, the Permittees shall comply with the requirements of WAC 173-303-640(7) and take the following actions:

1. Close the LAW Vitrification System sub-system following procedures in WAC 173-303-640(7)(e)(i), in accordance with WAC 173-303-680 and Attachment 51, Chapter 11.0 of this Permit, as approved pursuant to Permit Condition III.10.C.8; or

2. Repair and re-certify (in accordance with WAC 173-303-810(13)(a), as modified pursuant to Permit Condition III.10.I.1.a.iii.) the LAW Vitrification

System in accordance with Attachment 51, Appendix 9.18 of this Permit, as approved pursuant to Permit Condition III.10.H.5.e.v., before the LAW Vitrification System is placed back into service [WAC 173-303-640(7)(e)(iii) and WAC 173-303-640(7)(f), in accordance with WAC 173-303-680].

F. The Permittees shall document in the WTP Unit operating record actions/procedures taken to comply with A through E above, as specified in WAC 173-303-640(6)(d), in accordance with WAC 173-303-680(2) and (3).

G. In accordance with WAC 173-303-680(2) and (3), the Permittees shall notify and report releases to the environment to Ecology, as specified in WAC 173-303-640(7)(d).

xviii. If liquids (e.g., dangerous and/or mixed waste, leaks and spills, precipitation, fire water, liquids from damaged or broken pipes) cannot be removed from the secondary containment system within twenty-four (24) hours, Ecology will be verbally notified within twenty-four (24) hours of discovery. The notification shall provide the information in A, B, and C, listed below. The Permittees shall provide Ecology with a written demonstration within seven (7) business days, identifying at a minimum [WAC 173-303-640(4)(c)(iv) and WAC 173-303-640(7)(b)(ii), in accordance with WAC 173-303-680(3) and WAC 173-303-806(4)(i)(i)(B)]:

A. Reasons for delayed removal;

B. Measures implemented to ensure continued protection of human health and the environment;

C. Current actions being taken to remove liquids from secondary containment.

xix. All air pollution control devices and capture systems in the LAW Vitrification System shall be maintained and operated at all times in a manner so as to minimize the emissions of air contaminants and to minimize process upsets. Procedures for ensuring that the air pollution control devices and capture systems in the LAW Vitrification System are properly operated and maintained so as to minimize the emission of air contaminants and process upsets shall be established.

xx. In all future narrative permit submittals, the Permittees shall include LAW Vitrification sub-system names with the sub-system designation.

xxi. For any portion of the LAW Vitrification System that has the potential for formation and accumulation of hydrogen gases, the Permittees shall operate the portion to maintain hydrogen levels below the lower explosive limit [WAC 173-303-815(2)(b)(ii)].

xxii. For each LAW Vitrification System sub-system holding dangerous and/or mixed waste that are acutely or chronically toxic by inhalation, the Permittees shall operate the system to prevent escape of vapors, fumes, or other emissions into the air [WAC 173-303-806(4)(i)(i)(B) and WAC 173-303-640(5)(e), in accordance with WAC 173-303-680].

III.10.I.1.b. Performance Standards

i. The LAW Vitrification System must achieve a destruction and removal efficiency (DRE) of 99.99% for the principal organic dangerous constituents (PODCs) listed below [40 CFR §63.1203(c)(1) and 40CFR §63.1203(c)(2), in accordance with WAC 173-303-680(2)]:

RESERVED

DRE in this permit condition shall be calculated in accordance with the formula given below:

$DRE=[1-(W_{out}/W_{in})] \times 100\%$

Where:

W_{in}=mass feedrate of one principal organic dangerous constituent (PODC) in a waste feedstream; and

W_{out}=mass emission rate of the same PODC present in exhaust emissions prior to release to the atmosphere.

ii. Particulate matter emissions from the LAW Vitrification System shall not exceed 34 mg/dscm (0.015 grains/dscf) [40 CFR §63.1203(b)(7), in accordance with WAC 173-303-680(2)];

iii. Hydrochloric acid and chlorine gas emissions from the LAW Vitrification System shall not exceed 21 ppmv, combined [40 CFR §63.1203(b)(6), in accordance with WAC 173-303-680(2)];

iv. Dioxin and Furan TEQ emissions from the LAW Vitrification System shall not exceed 0.2 nanograms (ng)/dscm, [40 CFR §63.1203(b)(1), in accordance with WAC 173-303-680(2)];

v. Mercury emissions from the LAW Vitrification System shall not exceed 45 µg/dscm [40 CFR §63.1203(b)(2), in accordance with WAC 173-303-680(2)];

vi. Lead and cadmium emissions from the LAW Vitrification System shall not exceed 120 µg/dscm, combined [40 CFR §63.1203(b)(3), in accordance with WAC 173-303-680(2)];

vii. Arsenic, beryllium, and chromium emissions from the LAW Vitrification System shall not exceed 97 µg/dscm, combined [40 CFR §63.1203(b)(4), in accordance with WAC 173-303-680(2)];

viii. Carbon monoxide (CO) emission from the LAW Vitrification System shall not exceed 100 parts per million (ppm) by volume, over an hourly rolling average (as measured and recorded by the continuous monitoring system), dry basis [40 CFR §63.1203(b)(5)(i), in accordance with WAC 173-303-680(2) and (3)];

ix. Hydrocarbon emission from the LAW Vitrification System shall not exceed 10 parts per million (ppm) by volume, over an hourly rolling average (as measured and recorded by the continuous monitoring system during demonstration testing required by this Permit), dry basis and reported as propane [40 CFR §63.1203(b)(5)(ii), in accordance with WAC 173-303-680(2) and (3)];

x. If the emissions from the LAW Vitrification System exceed the emission rates listed in Permit Table III.10.I.E, as approved pursuant to Permit Condition III.10.C.11.c. or d., the Permittees shall perform the following actions [WAC 173-303-680(2) and (3), and WAC 173-303-815(2)(b)(ii)]:

A. Verbally notify Ecology within twenty-four (24) hours of the discovery of exceeding the emission rate(s) as specified in Permit Condition I.E.21.

B. Submit to Ecology additional risk information to indicate that the increased emissions impact is offset by decreased emission impact from one or more constituents expected to be emitted at the same time, and/or investigate the cause and impact of the exceedance of the emission rate(s) and submit a report of the investigation findings to Ecology within fifteen (15) days of the discovery of exceeding the emission rate(s); and

C. Based on the notification and any additional information, Ecology may submit, in writing, direction to the Permittees to stop dangerous and/or mixed waste feed to the LAW Vitrification System and/or to submit a revised Demonstration Test Plan as a permit modification pursuant to Permit Conditions III.10.C.2.e. through g. The revised Demonstration Test Plan must include substantive changes to prevent failure from reoccurring.

The emission limits specified in Permit Conditions III.10.I.1.b.i. through x. above, shall be met for the LAW Vitrification System by limiting feed rates as specified in Permit Tables III.10.I.D and III.10.I.F, as approved/modified pursuant to Permit Conditions III.10.H.5. and III.10.H.3.d.v., compliance with operating conditions specified in Permit Condition III.10.I.1.c. (except as specified in Permit Condition III.10.I.1.b.xii.), and compliance with Permit Condition III.10.I.1.b.xi.;

xi. Treatment effectiveness, feed-rates and operating rates for dangerous and/or mixed waste management units contained in the LAW Building, but not included in Permit Table III.10.I.A, as approved/modified pursuant to Permit Condition III.10.H.5, shall be as specified in Permit Sections III.10.D through F and consistent with assumptions and basis which are reflected in Attachment 51, Appendix 6.3.1 of this Permit, as approved pursuant to Permit Condition III.10.C.11.b. For the purposes of this permit condition, Attachment 51,Appendix 6.3.1 shall be superceded by Appendix 6.4.1 upon its approval pursuant to either Permit Condition III.10.C.11.c or III.10.C.11.d. [WAC 173-303-680(2) and (3), and WAC 173-303-815(2)(b)(ii)];

xii. Compliance with the operating conditions specified in Permit Condition III.10.I.1.c., shall be regarded as compliance with the required performance standards identified in Permit Conditions III.10.I.1.b.i. through x. However, if it is determined that during the effective period of this Permit that compliance with the operating conditions in Permit Condition III.10.I.1.c. is not sufficient to ensure compliance with the performance standards specified in Permit Conditions III.10.I.1.b.i. through x., the Permit may be modified, revoked, or reissued pursuant to Permit Conditions III.10.C.2.e. and f., or III.10.C.2.g.

III.10.I.1.c. Operating Conditions [WAC-303-670(6), in accordance with WAC 173-303-680(2)and (3)]

The Permittees shall operate the LAW Vitrification System in accordance with Attachment 51, Chapter 4.0 of this Permit, as updated pursuant to Permit Condition III.10.H.5.e.vi. and Attachment 51, Appendix 9.18 of this Permit, as approved pursuant to Permit Condition III.10.H.5.e., and Attachment 51, Appendix 9.15 of this Permit, as approved pursuant to Permit Condition III.10.H.5.f., except as modified pursuant to Permit Conditions III.10.H.3, III.10.I.1.b.x., III.10.I.1.b.xii., III.10.I.1.h., and in accordance with and the following:

i. The Permittees shall operate the LAW Vitrification System in order to maintain the systems and process parameters listed in Permit Tables III.10.I.C and III.10.I.F, as approved/modified pursuant to Permit Conditions III.10.H.5 and III.10.H.3.d.v., within the set-points specified in Permit Table III.10.I.F.

ii. The Permittees shall operate the AWFCO systems, specified in Permit Table III.10.I.F, as approved/modified pursuant to Permit Conditions III.10.H.5 and III.10.H.3.d.v., to automatically cut-off and/or lock-out the dangerous and/or mixed waste feed to LAW Vitrification System when the monitored operating conditions deviate from the set-points specified in Permit Table III.10.I.F.

iii. The Permittees shall operate the AWFCO systems, specified in Permit Table III.10.I.F, as approved/modified pursuant to Permit Conditions III.10.H.5 and III.10.H.3.d.v., to automatically cut-off and/or lock-out the dangerous and/or mixed waste feed to LAW Vitrification System when all instruments specified in Permit Table III.10.H.F for measuring the monitored parameters fails or exceeds its span value.

iv. The Permittees shall operate the AWFCO systems, specified in Permit Table III.10.I.F, as approved/modified pursuant to Permit Conditions III.10.H.5 and III.10.H.3.d.v., to automatically cut-off and/or lock out the dangerous waste and/or mixed waste feed to the LAW Vitrification System when any portion of the LAW Vitrification System is bypassed. The terms “bypassed” and “bypass event,” as used in Permit Sections III.10.H and III.10.I, shall mean if any portion of the LAW Vitrification System is bypassed so that gases are not treated as during the Demonstration Test.

v. In the event of a malfunction of the AWFCO systems listed in Permit Table III.10.I.F, as approved/modified pursuant to Permit Conditions III.10.H.5 and III.10.H.3.d.v., the Permittees shall immediately, manually cut-off the dangerous and/or mixed waste feed to the LAW Vitrification System. The Permittees shall not restart the dangerous and/or mixed waste feed until the problem causing the malfunction has been identified and corrected.

vi. The Permittees shall manually cut-off the dangerous and/or mixed waste feed to the LAW Vitrification System when the operating conditions deviate from the limits specified in Permit Condition III.10.I.1.c.i., unless the deviation automatically activates the waste feed cut-off sequence specified in Permit Conditions III.10.I.1.c.ii., iii., and/or iv.

vii. If greater than thirty (30) dangerous and/or mixed waste feed cut-off, combined, to the LAW Vitrification System occur due to deviations from Permit Table III.10.I.F, as approved/modified pursuant to Permit Conditions III.10.H.5 and III.10.H.3.d.v., within a sixty (60) day period, the Permittees shall submit a written report to Ecology within

five (5) calendar days of the thirty-first exceedance, including the information specified below. These dangerous and/or mixed waste feed cut-offs to the LAW Vitrification System, whether automatically or manually activated, are counted if the specified set-points are deviated from while dangerous and/or mixed waste and waste residues continue to be processed in the LAW Vitrification System. A cascade event is counted at a frequency of one (1) towards the first waste feed cut-off parameter, specified in Permit Table III.10.I.F, from which the set-point is deviated:

A. The parameter(s) that deviated from the set-point(s) in Permit Table III.10.I.F;

B. The magnitude, dates, and duration of the deviations;

C. Results of the investigation of the cause of the deviations; and

D. Corrective measures taken to minimize future occurrences of the deviations.

viii. If greater than thirty (30) dangerous and/or mixed waste feed cut-off, combined, to the LAW Vitrification System occur due to deviations from Permit Table III.10.I.F, as approved/modified pursuant to Permit Conditions III.10.H.5 and III.10.H.3.d.v., within a thirty (30) day period, the Permittees shall submit the written report required to be submitted pursuant to Permit Condition III.10.I.1.c.vii. to Ecology on the first business day following the thirty-first exceedance. These dangerous and/or mixed waste feed cut-offs to the LAW Vitrification System, whether automatically or manually activated, are counted if the specified set-points are deviated from while dangerous and/or mixed waste and waste residues continue to be processed in the LAW Vitrification System. A cascade event is counted at a frequency of one (1) towards the first waste feed cut-off parameter, specified on Permit Table III.10.I.F, from which the set-point is deviated:

In accordance with WAC 173-303-680(2) and (3), the Permittees may not resume dangerous and/or mixed waste feed to the LAW Vitrification System until this written report has been submitted, and

A. Ecology has authorized the Permittees, in writing, to resume dangerous and/or mixed waste feed, or

B. Ecology has not, within seven (7) days, notified the Permittees in writing of the following:

1. The Permittees written report does not document that the corrective measures taken will minimize future exceedances; and

2. The Permittees must take further corrective measures and document that these further corrective measures will minimize future exceedances.

ix. If any portion of the LAW Vitrification System is bypassed while treating dangerous and/or mixed waste, it shall be regarded as non-compliance with the operating conditions specified in Permit Condition III.10.I.1.c. and the performance standards specified in Permit Condition III.10.I.1.b. After such a bypass event, the Permittees shall perform the following actions:

A. Investigate the cause of the bypass event;

B. Take appropriate corrective measures to minimize future bypasses;

C. Record the investigation findings and corrective measures in the WTP Unit operating record; and

D. Submit a written report to Ecology within five (5) days of the bypass event documenting the result of the investigation and corrective measures.

x. The Permittees shall control fugitive emissions from the LAW Vitrification System by maintaining the melters under negative pressure.

xi. Compliance with the operating conditions specified in Permit Condition III.10.I.1.c. shall be regarded as compliance with the required performance standards identified in Permit Condition III.10.I.1.b. However, evidence that compliance with these operating conditions is insufficient to ensure compliance with the performance standards, shall justify modification, revocation, or re-issuance of this Permit, in accordance with Permit Conditions III.10.C.2.e. and f., or III.10.C.2.g.

III.10.I.1.d. Inspection Requirements [WAC 173-303-680(3)]

i. The Permittees shall inspect the LAW Vitrification System in accordance with the Inspection Schedules in Attachment 51, Chapter 6.0 of this Permit, as modified in accordance with Permit Condition III.10.C.5.c.

ii. The inspection data for LAW Vitrification System shall be recorded, and the records shall be placed in the WTP Unit operating record for LAW Vitrification System, in accordance with Permit Condition III.10.C.4.

iii. The Permittees shall comply with the inspection requirements specified in Attachment 51, Appendix 9.15 of this Permit, as approved pursuant to Permit Condition III.10.H.5.f. and as modified by Permit Conditions III.10.H.3, III.10.I.1.b.x., III.10.I.1.b.xii., and III.10.I.1.h.

III.10.I.1.e. Monitoring Requirements [WAC 173-303-670(5), WAC 173-303-670(6), WAC 173-303-670(7), and WAC 173-303-807(2), in accordance with WAC 173-303-680(3)]

i. Upon receipt of a written request from Ecology, the Permittees shall perform sampling and analysis of the dangerous and/or mixed waste and exhaust emissions to verify that the operating requirements established in the Permit achieve the performance standards delineated in this Permit.

ii. The Permittees shall comply with the monitoring requirements specified in the Attachment 51, Appendices 9.2, 9.3, 9.7, 9.13, 9.15 and 9.18 of this Permit, as approved pursuant to Permit Condition III.10.H.5, and as modified by Permit Conditions III.10.H.3, III.10.I.1.h., III.10.I.1.b.x., and III.10.I.1.b.xii.

iii. The Permittees shall operate, calibrate, and maintain the carbon monoxide and hydrocarbon continuous emission monitors (CEM) specified in this Permit in accordance with Performance Specifications 4B and 8A of 40 CFR Part 60, Appendix B, in accordance with Appendix to Subpart EEE of 40 CFR Part 63, and Attachment 51 Appendix 9.15 of this Permit, as approved pursuant to Permit Condition III.10.H.5.f.,

and as modified by Permit Conditions III.10. H.3, III.10.I.1.h., III.10.I.1.b.x., and III.10.I.1.b.xii.

iv. The Permittees shall operate, calibrate, and maintain the instruments specified in Permit Tables III.10.I.C and F, as approved/modified pursuant to Permit Conditions III.10.H.5 and III.10.H.3.d.v., in accordance with Attachment 51, Appendix 9.15 of this Permit, as approved pursuant to Permit Condition III.10.H.5.f., and as modified by Permit Conditions III.10.H.3, III.10.I.1.h., III.10.I.1.b.x., and III.10.I.1.b.xii.

III.10.I.1.f. Recordkeeping Requirements [WAC 173-303-380 and WAC 173-303-680(3)]

i. The Permittees shall record and maintain in the WTP Unit operating record for the LAW Vitrification System, all monitoring, calibration, maintenance, test data, and inspection data compiled under the conditions of this Permit, in accordance with Permit Conditions III.10.C.4 and 5, as modified by Permit Conditions III.10.H.3, III.10.I.1.h., III.10.I.1.b.x., and III.10.I.1.b.xii.

ii. The Permittees shall record in the WTP Unit operating record the date, time, and duration of all automatic waste feed cutoffs and/or lockouts, including the triggering parameters, reason for the deviation, and recurrence of the incident. The Permittees shall also record all incidents of AWFCO system function failures, including the corrective measures taken to correct the condition that caused the failure.

iii. The Permittees shall submit to Ecology an annual report each calendar year within ninety (90) days following the end of the year. The report will include the following information:

A. Total dangerous and/or mixed waste feed processing time for the LAW Vitrification System;

B. Date/Time of all LAW Vitrification System startups and shutdowns;

C. Date/Time/Duration/Cause/Corrective Action taken for all LAW Vitrification System shutdowns caused by malfunction of either process or control equipment; and

D. Date/Time/Duration/Cause/Corrective Action taken for all instances of dangerous and/or mixed waste feed cut-off due to deviations from Permit Table III.10.I.F, as approved/modified pursuant to Permit Conditions III.10.H.5 and III.10.H.3.d.v.

iv. The Permittees shall submit an annual report to Ecology each calendar year within ninety (90) days following the end of the year of all quarterly CEM Calibration Error and Annual CEM Performance Specification Tests conducted, in accordance with Permit Condition III.10.I.1.e.iii.

III.10.I.1.g. Closure

The Permittees shall close the LAW Vitrification System in accordance with Attachment 51, Chapter 11.0 of this Permit, as approved pursuant to Permit Condition III.10.C.8.

III.10.I.1.h. Periodic Emission Re-testing Requirements [WAC 173-303-670(5), WAC 173-303-670(7), and WAC 173-303-807(2), in accordance with WAC 173-303-680(2) and (3)]

i. Dioxin and Furan Emission Testing

A. Within eighteen (18) months of commencing operation pursuant to Permit Section III.10.I, the Permittees shall submit to Ecology for approval, a Dioxin and Furan Emission Test Plan (DFETP) for the performance of emission testing of the LAW Vitrification System gases for dioxin and furans during "Normal Operating Conditions" as a permit modification in accordance with Permit Conditions III.10.C.2.e. and III.10.C.2.f. The DFETP shall include all elements applicable to dioxin and furan emission testing included in the "Previously Approved Demonstration Test Plan," applicable EPA promulgated test methods and procedures in effect at the time of the submittal, and projected commencement and completion dates for dioxin and furan emission test. "Normal Operating Conditions" shall be defined for the purposes of this permit condition as follows:

1. Carbon monoxide emissions, dangerous and/or mixed waste feed-rate, and automatic waste feed cut-off parameters specified in Permit Table III.10.I.F (as approved/modified pursuant to Permit Conditions III.10.H.5 and III.10.H.3.d.v.), that were established to maintain compliance with Permit Condition III.10.I.1.b.iv. as specified in Attachment 51, Appendix 9.15 of this Permit (as approved pursuant to Permit Condition III.10.H.3.d., and in accordance with III.10.I.1.b.xii. and III.10.I.1.c.xi.), are held within the range of the average value over the previous twelve (12) months and the set-point value specified in Permit Table III.10.I.F. The average value is defined as the sum of the rolling average values recorded over the previous twelve (12) months divided by the number of rolling averages recorded during that time. The average value shall not include calibration data, malfunction data, and data obtained when not processing dangerous and/or mixed waste; and

2. Feed-rate of metals, ash, and chlorine/chloride are held within the range of the average value over the previous twelve (12) months and the set-point value specified on Permit Table III.10.I.D (as approved/modified pursuant to Permit Conditions III.10.H.5 and III.10.H.3.d.v.). Feed-rate of organics as measured by TOC are held within the range of the average value over the previous twelve (12) months. The average value is defined as the sum of the rolling average values recorded over the previous twelve (12) months divided by the number of rolling averages recorded during that time. The average value shall not include data obtained when not processing dangerous and/or mixed waste.

For purposes of this permit condition, the "Previously Approved Demonstration Test Plan" is defined to include the Demonstration Test Plan approved pursuant to Permit Condition III.10.H.5.f.

B. Within sixty (60) days of Ecology's approval of the DFETP, or within thirty-one (31) months of commencing operation pursuant to Permit Section III.10.I, whichever is later, the Permittees shall implement the DFETP approved pursuant to Permit Condition III.10.I.1.h.i.A.

C. The Permittees shall resubmit the DFETP, approved pursuant to Permit Condition III.10.I.1.h.i.A, revised to include applicable EPA promulgated test methods and procedures in effect at the time of the submittal, and projected commencement and completion dates for dioxin and furan emission test as a permit modification in accordance with Permit Conditions III.10.C.2.e. and III.10.C.2.f. at twenty-four (24) months from the implementation date of the testing required pursuant to Permit Condition III.10.I.1.h.i.A and at reoccurring eighteen (18) month intervals from the implementation date of the previously approved DFETP. The Permittees shall implement these newly approved revised DFETPs, every thirty-one (31) months from the previous approved DFETP implementation date or within sixty (60) days of the newly Ecology approved revised DFETP, whichever is later, for the duration of this Permit.

D. The Permittees shall submit a summary of operating data collected pursuant to the DFETPs in accordance with Permit Conditions III.10.I.1.h.i.A and C to Ecology upon completion of the tests. The Permittees shall submit to Ecology the complete test report within ninety (90) calendar days of completion of the testing. The test reports shall be certified as specified in WAC 173-303-807(8), in accordance with WAC 173-303-680(2) and (3).

E. If any calculations or testing results collected pursuant to the DFETPs in accordance with Permit Conditions III.10.I.1.h.i.A and C. show that one or more of the performance standards listed in Permit Condition III.10.I.1.b., with the exception of Permit Condition III.10.I.1.b.x., for the LAW Vitrification System were not met during the emission test, the Permittees shall perform the following actions:

1. Immediately stop dangerous and/or mixed waste feed to the LAW Vitrification System under the mode of operation that resulted in not meeting the performance standard(s);

2. Verbally notify Ecology within twenty-four (24) hours of discovery of not meeting the performance standard(s), as specified in Permit Condition I.E.21.;

3. Investigate the cause of the failure and submit a report of the investigation findings to Ecology within fifteen (15) days of discovery of not meeting the performance standard(s);

4. Submit to Ecology within fifteen (15) days of discovery of not meeting the performance standard(s) documentation supporting a mode of operation where all performance standards listed in Permit Condition III.I.1.b., with the exception of Permit Condition III.10.I.1.b.x., for the LAW Vitrification System were met during the demonstration test, if any such mode was demonstrated;

5. Based on the information provided to Ecology by the Permittees pursuant to Permit Conditions III.10.I.1.h.i.E.1 through 4 above, and any additional information, Ecology may submit in writing, direction to the Permittees to

stop dangerous waste and mixed waste feed to the LAW Vitrification System and/or amend the mode of operation the Permittees are allowed to continue operations prior to Ecology approval of the revised Demonstration Test Plan pursuant to Permit Condition III.10. I.1.h.i.E.6; and

6. Submit to Ecology within one hundred and twenty (120) days of discovery of not meeting the performance standard(s) a revised Demonstration Test Plan requesting approval to retest as a permit modification pursuant to Permit Conditions III.10.C.2.e.and III.10.C.2.f. The revised Demonstration Test Plan must include substantive changes to prevent failure from reoccurring reflecting performance under operating conditions representative of the extreme range of normal conditions, and include revisions to Permit Tables III.10.I.D and F.

F. If any calculations or testing results collected pursuant to the DFETPs in accordance with Permit Conditions III.10.I.1.h.i.A and C show that any emission rate for any constituent listed in Permit Table III.10.I.E, as approved/modified pursuant to Permit Conditions III.10.C.11.c. or d. is exceeded for LAW Vitrification System during the emission test, the Permittees shall perform the following actions:

1. Verbally notify Ecology within twenty-four (24) hours of the discovery of exceeding the emission rate(s), as specified in Permit Condition I.E.21.;

2. Submit to Ecology additional risk information to indicate that the increased emissions impact is off-set by decreased emission impact from one or more constituents expected to be emitted at the same time, and/or investigate the cause and impact of the exceedance and submit a report of the investigation findings to Ecology within fifteen (15) days of this discovery of exceeding the emission rate(s); and

3. Based on the notification and any additional information, Ecology may submit, in writing, direction to the Permittees to stop dangerous and/or mixed waste feed to the LAW Vitrification System and/or to submit a revised Demonstration Test Plan as a permit modification pursuant to Permit Conditions III.10.C.2.e. and f., or III.10.C.2.g. The revised Demonstration Test Plan must include substantive changes to prevent failure from reoccurring reflecting performance under operating conditions representative of the extreme range of normal conditions, and include revisions to Permit Tables III.10.I.D and III.10.I.F.

ii. Non-organic Emission Testing

A. Within forty-eight (48) months of commencing operation pursuant to Permit Section III.10.I, the Permittees shall resubmit to Ecology for approval the "Previously Approved Demonstration Test Plan" revised as a permit modification in accordance with Permit Conditions III.10.C.2.e. and III.10.C.2f. The revised Demonstration Test Plan (RDTP) shall include applicable EPA promulgated test methods and procedures in effect at the time of the submittal, projected

commencement and completion dates for emission testing to demonstrate performance standards specified in Permit Conditions III.10.I.1.b.ii., iii., v., vi., and vii., and non-organic emissions as specified in Permit Table III.10.I.E, as approved/modified pursuant to Permit Conditions III.10.H.3.d. and III.10.C.11.c. or d., under "Normal Operating Conditions." "Normal Operating Conditions" shall be defined for the purposes of this permit condition as follows:

1. Carbon monoxide emissions, dangerous and/or mixed waste feed-rate, and automatic waste feed cut-off parameters specified in Permit Table III.10.I.F, as approved/modified pursuant to Permit Conditions III.10.H.3.d. and III.10.C.11.c. or d., that were established to maintain compliance with Permit Conditions III.10.I.1.b.ii., iii., v., vi., and vii., and non-organic emissions, as specified in Permit Table III.10.I.E, as specified in Attachment 51, Appendix 9.15 of this Permit (as approved pursuant to Permit Conditions III.10.H.3.d. and III.10.C.11.c. or d.), are held within the range of the average value over the previous twelve (12) months and the set-point value specified in Permit Table III.10.I.F. The average value is defined as the sum of the rolling average values recorded over the previous twelve (12) months divided by the number of rolling averages recorded during that time. The average value shall not include calibration data, malfunction data, and data obtained when not processing dangerous or mixed waste; and

2. Feed-rate of metals, ash, and chlorine/chloride are held within the range of the average value over the previous twelve (12) months and the set-point value specified in Permit Table III.10.I.D, as approved/modified pursuant to Permit Conditions III.10.H.3.d. and III.10.C.11.c. or d. The average value is defined as the sum of all rolling average values recorded over the previous twelve (12) months divided by the number of rolling averages recorded during that time. The average value shall not include data obtained when not processing dangerous or mixed waste.

For purposes of this permit condition, the "Previously Approved Demonstration Test Plan" is defined to include the Demonstration Test Plan approved pursuant to Permit Condition III.10.H.5.f.

B. Within sixty (60) days of Ecology's approval of the RDTP, or within sixty (60) months of commencing operation pursuant to Permit Section III.10.I, whichever is later, the Permittees shall implement the RDTP approved pursuant to Permit Condition III.10.I.1.h.ii.A.

C. The Permittees shall resubmit the RDTP, approved pursuant to Permit Condition III.10.I.1.h.ii.A, revised to include applicable EPA promulgated test methods and procedures in effect at the time of the submittal, and projected commencement and completion dates for emission test as a permit modification in accordance with Permit Conditions III.10.C.2.e. and f. at forty-eight (48) months from the implementation date of the testing required pursuant to Permit Condition III.10.I.1.h.ii.A and at reoccurring forty-eight (48) month intervals from the implementation date of the previously approved RDTP. The Permittees shall

implement these newly approved revised RDTP, every sixty (60) months from the previous approved RDTP implementation date or within sixty (60) days of the newly Ecology approved revised RDTP, whichever is later, for the duration of this Permit.

D. The Permittees shall submit a summary of operating data collected pursuant to the RDTPs in accordance with Permit Conditions III.10.I.1.h.ii.A and C to Ecology upon completion of the tests. The Permittees shall submit to Ecology the complete test report within ninety (90) calendar days of completion of the testing. The test reports shall be certified pursuant to WAC 173-303-807(8), in accordance with WAC 173-303-680(2) and (3).

E. If any calculations or testing results collected pursuant to the DFETPs in accordance with Permit Conditions III.10.I.1.h.ii.A and C show that any emission rate for any constituent listed in Permit Table III.10.I.E, as approved/modified pursuant to Permit Conditions III.10.H.3.d. and III.10.C.11.c. or d., is exceeded for LAW Vitrification System during the emission test, the Permittees shall perform the following actions:

1. Verbally notify Ecology within twenty-four (24) hours of the discovery of exceeding the emission rate(s), as specified in Permit condition I.E.21.;

2. Submit to Ecology additional risk information to indicate that the increased emissions impact is off-set by decreased emission impact from one or more constituents expected to be emitted at the same time, and/or investigate the cause and impact of the exceedance and submit a report of the investigation findings to Ecology within fifteen (15) days of this discovery of exceeding the emission rate(s); and

3. Based on the notification and any additional information, Ecology may submit, in writing, direction to the Permittees to stop dangerous and/or mixed waste feed to the LAW Vitrification System and/or to submit a revised Demonstration Test Plan as a permit modification pursuant to Permit Conditions III.10.C.2.e. and f., or III.10.C.2.g. The revised Demonstration Test Plan must include substantive changes to prevent failure from reoccurring reflecting performance under operating conditions representative of the extreme range of normal conditions, and include revisions to Permit Tables III.10.I.D and III.10.I.F.

F. If any calculations or testing results collected pursuant to the DFETPs in accordance with Permit Conditions III.10.I.1.h.ii.A and C show that one or more of the performance standards listed in Permit Condition III.10.I.1.b., with the exception of Permit Condition III.10.I.1.b.x., for the LAW Vitrification System were not met during the emission test, the Permittees shall perform the following actions:

1. Immediately stop dangerous and/or mixed waste feed to the LAW Vitrification System under the mode of operation that resulted in not meeting the performance standard(s);

2. Verbally notify Ecology within twenty-four (24) hours of discovery of not meeting the performance standard(s), as specified in Permit condition I.E.21.;

3. Investigate the cause of the failure and submit a report of the investigation findings to Ecology within fifteen (15) days of discovery of not meeting the performance standard(s);

4. Submit to Ecology within fifteen (15) days of discovery of not meeting the performance standard(s) documentation supporting a mode of operation where all performance standards listed in Permit Condition III.I.1.b., with the exception of Permit Condition III.10.I.1.b.x., for the LAW Vitrification System were met during the demonstration test, if any such mode was demonstrated;

5. Based on the information provided to Ecology by the Permittees pursuant to Permit Conditions III.10.I.1.h.ii.F.1 through 4 above, and any additional information, Ecology may submit in writing, direction to the Permittees to stop dangerous and/or mixed waste feed to the LAW Vitrification System and/or amend the mode of operation the Permittees are allowed to continue operations prior to Ecology approval of the revised Demonstration Test Plan pursuant to Permit Condition III.10.I.1.h.ii.F.6; and

6. Submit to Ecology within one hundred and twenty (120) days of discovery of not meeting the performance standard(s) a revised Demonstration Test Plan requesting approval to retest as a permit modification pursuant to Permit Conditions III.10.C.2.e. and f. The revised Demonstration Test Plan must include substantive changes to prevent failure from reoccurring reflecting performance under operating conditions representative of the extreme range of normal conditions, and include revisions to Permit Tables III.10.I.D and F.

iii. Other Emission Testing

A. Within seventy-eight (78) months of commencing operation pursuant to Permit Section III.10.I, the Permittees shall resubmit to Ecology for approval the "Previously Approved Demonstration Test Plan" revised as a permit modification in accordance with Permit Conditions III.10.C.2.e. and f. The revised Demonstration Test Plan (RDTP) shall include applicable EPA promulgated test methods and procedures in effect at the time of the submittal, projected commencement and completion dates for emission testing to demonstrate performance standards as specified in Permit Conditions III.10.I.1.b.viii. and ix., and emissions as specified in Permit Table III.10.I.E, as approved/modified pursuant to Permit Conditions III.10.H.3.d. and III.10.C.11.c. or d., not addressed under Permit Conditions III.10.I.1.h.i. or ii. under "Normal Operating Conditions." "Normal Operating Conditions" shall be defined for the purposes of this permit condition as follows:

1. Carbon monoxide emissions, dangerous and/or mixed waste feed-rate, and automatic waste feed cut-off parameters specified in Permit Table III.10.I.F, as approved/modified pursuant to Permit Condition III.10.H.3.d. and

III.10.C.11.c. or d., that were established to maintain compliance with Permit Conditions III.10.I.1.b.viii. and ix., and emissions as specified in Permit Table III.10.I.E, not addressed under Permit Conditions III.10.I.1.h.i. or ii. as specified in Attachment 51, Appendix 9.15 of this Permit, as approved pursuant to Permit Condition III.10.H.3.d., and in accordance with Permit Conditions III.10.I.1.b.xii. and III.10.I.1.c.xi. are held within the range of the average value over the previous twelve (12) months and the set-point value specified on Permit Table III.10.I.F. The average value is defined as the sum of all rolling average values recorded over the previous twelve (12) months divided by the number of rolling averages recorded during that time. The average value shall not include calibration data, malfunction data, and data obtained when not processing dangerous and/or mixed waste; and

2. Feed-rate of metals, ash, and chlorine/chloride are held within the range of the average value over the previous twelve (12) months and the set-point value specified in Permit Table III.10.I.D, as approved/modified pursuant to Permit Conditions III.10.H.3.d. and III.10.C.11.c. or d. Feed-rate of organics as measured by TOC are held within the range of the average value over the previous twelve (12) months. The average value is defined as the sum of the rolling average values recorded over the previous twelve (12) months divided by the number of rolling averages recorded during that time. The average value shall not include data obtained when not processing dangerous and/or mixed waste.

For purposes of this permit condition, the "Previously Approved Demonstration Test Plan" is defined to include the Demonstration Test Plan approved pursuant to Permit Condition III.10.H.5.f.

B. Within sixty (60) days of Ecology's approval of the RDTP, or within ninety-one (91) months of commencing operation pursuant to Permit Section III.10.I, whichever is later, the Permittees shall implement the RDTP approved pursuant to Permit Condition III.10.I.1.h.iii.A.

C. The Permittees shall submit a summary of operating data collected pursuant to the RDTPs in accordance with Permit Condition III.10.I.1.h.iii.A to Ecology upon completion of the tests. The Permittees shall submit to Ecology the complete test report within ninety (90) calendar days of completion of the testing. The test reports shall be certified as specified in WAC 173-303-807(8), in accordance with Permit Condition WAC 173-303-680(2) and (3).

D. If any calculations or testing results show that one or more of the performance standards listed in Permit Condition III.10.I.1.b., with the exception of Permit Condition III.10.I.1.b.x., for the LAW Vitrification System were not met during the emission test, the Permittees shall perform the following actions:

1. Immediately stop dangerous and/or mixed waste feed to the LAW Vitrification System under the mode of operation that resulted in not meeting the performance standard(s);

2. Verbally notify Ecology within twenty-four (24) hours of discovery of not meeting the performance standard(s), as specified in Permit Condition I.E.21.;

3. Investigate the cause of the failure and submit a report of the investigation findings to Ecology within fifteen (15) days of discovery of not meeting the performance standard(s);

4. Submit to Ecology within fifteen (15) days of discovery of not meeting the performance standard(s) documentation supporting a mode of operation where all performance standards listed in Permit Condition III.I.1.b., with the exception of Permit Condition III.10.I.1.b.x., for the LAW Vitrification System were met during the demonstration test, if any such mode was demonstrated;

5. Based on the information provided to Ecology by the Permittees pursuant to Permit Conditions III.10.I.1.h.iii.D.1 through 4 above, and any additional information, Ecology may submit in writing, direction to the Permittees to stop dangerous and/or mixed waste feed to the LAW Vitrification System and/or amend the mode of operation the Permittees are allowed to continue operations prior to Ecology approval of the revised Demonstration Test Plan, pursuant to Permit Condition III.10. I.h.1.iii.D.6.; and

6. Submit to Ecology within one hundred and twenty (120) days of discovery of not meeting the performance standard(s) a revised Demonstration Test Plan requesting approval to retest as a permit modification pursuant to Permit Conditions II.10.C.2.e. and f. The revised Demonstration Test Plan must include substantive changes to prevent failure from reoccurring reflecting performance under operating conditions representative of the extreme range of normal conditions, and include revisions to Permit Tables III.10.I.D and III.10.I.F.

E. If any calculations or testing results show that any emission rate for any constituent listed in Permit Table III.10.I.E, as approved/modified pursuant to Permit Conditions III.10.C.11.c. or d., is exceeded for LAW Vitrification System during the emission test, the Permittees shall perform the following actions:

1. Verbally notify Ecology within twenty-four (24) hours of the discovery of exceeding the emission rate(s), as specified in Permit Condition I.E.21.;

2. Submit to Ecology additional risk information to indicate that the increased emissions impact is off-set by decreased emission impact from one or more constituents expected to be emitted at the same time, and/or investigate the cause and impact of the exceedance of the emission rate(s) and submit a report of the investigation findings to Ecology within fifteen (15) days of the discovery of the exceedance of the emission rate(s); and

3. Based on the notification and any additional information, Ecology may submit, in writing, direction to the Permittees to stop dangerous and/or mixed

waste feed to the LAW Vitrification System and/or to submit a revised Demonstration Test Plan as a permit modification pursuant to Permit Conditions III.10.C.2.e. and f., or III.10.C.2.g. The revised Demonstration Test Plan must include substantive changes to prevent failure from reoccurring reflecting performance under operating conditions representative of the extreme range of normal conditions, and include revisions to Permit Tables III.10.I.D and F.

1 **Table III.10.I.A - LAW Vitrification System Description**

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Sub-system Description	Sub-system Designation	Engineering Description (Drawing Nos, Specification Nos, etc.)	Narrative Description, Tables and Figures
Melter Feed [a] Systems-Melter 1,2, & 3	LFP LCP GFR	RESERVED	Section 4.2.3.1; Tables 4-4 and 4-11, and Figures 4A-1, 4A-3, and 4A-20 of Attachment 51, Chapter 4 of this Permit
LAW Melters 1,2, & 3	LMP	RESERVED	Section 4.2.3.2; Tables 4-4, and Figure 4A-21 of Attachment 51, Chapter 4 of this Permit
LAW Glass Product Systems-Melter 1,2, & 3	LMP	RESERVED	Section 4.2.3.2 of Attachment 51, Chapter 4 of this Permit
Primary & Secondary Film Coolers-Melter 1, 2, & 3	LOP	RESERVED	Section 4.2.3.3 and Figure 4A-21 of Attachment 51, Chapter 4 of this Permit
Submerged Bed Scrubbers/Condensate Vessels [a]-Melter 1, 2, & 3	LOP	RESERVED	Section 4.2.3.3; Tables 4-4 and 4-11, and Figure 4A-22 of Attachment 51, Chapter 4 of this Permit
Wet electrostatic Precipitators-Melter 1, 2, & 3	LOP	RESERVED	Section 4.2.3.3 and Figure 4A-22 of Attachment 51, Chapter 4 of this Permit
High Efficiency Particulate Air Filters	LVP	RESERVED	Section 4.2.3.3 and Figure 4A-23 of Attachment 51, Chapter 4 of this Permit
Thermal Catalytical Oxidation Unit	LVP	RESERVED	Section 4.2.3.3 and Figure 4A-23 of Attachment 51, Chapter 4 of this Permit
Selective Catalytical Reduction Units	LVP	RESERVED	Section 4.2.3.3 and Figure 4A-23 of Attachment 51, Chapter 4 of this Permit
Caustic Scrubber/Blowdown Vessel [a]	LVP	RESERVED	Section 4.2.3.3 and Figure 4A-23 of Attachment 51, Chapter 4 of this Permit
Electric Heaters	LVP	RESERVED	Section 4.2.3.3 and Figure 4A-23 of Attachment 51, Chapter 4 of this Permit
Heat Exchangers	LVP	RESERVED	Section 4.2.3.3 and Figure 4A-23 of Attachment 51, Chapter 4 of this Permit
Pumps	LVP	RESERVED	Section 4.2.3.3 and Figure 4A-23 of Attachment 51, Chapter 4 of this Permit
Exhaust Fans	LVP	RESERVED	Section 4.2.3.3 of Attachment 51, Chapter 4 of this Permit

Sub-system Description	Sub-system Designation	Engineering Description (Drawing Nos, Specification Nos, etc.)	Narrative Description, Tables and Figures
Mist Eliminators	LVP	RESERVED	Section 4.2.3.3 of Attachment 51, Chapter 4 of this Permit
LAW Stack	LVP	RESERVED	Section 4.2.3.3 and Figure 4A-23 of Attachment 51, Chapter 4 of this Permit

a. Requirements pertaining to the tanks in LAW Vitrification System Melter Feed System, Submerged Bed Scrubbers/Condensate Vessels, and Caustic Scrubber/Blowdown Vessel are specified in Permit Section III.10.E.

Table III.10.I.B - LAW Vitrification System Secondary Containment Systems Including Sumps and Floor Drains

Sump/Floor Drain I.D.# & Room Location	Maximum Sump Capacity (gallons)	Sump Dimensions (feet) & Materials of Construction	Engineering Description (Drawing Nos, Specification Nos, etc.)	~~Leak Detection Type~~
RESERVED	RESERVED	RESERVED	RESERVED	~~RESERVED~~

Table III.10.I.C - LAW Vitrification Systems Process and Leak Detection System Instruments and ~~Process~~ Parameters

Sub-system Locator and Name (including P&ID)	Control Parameter	Type of Measuring or Leak Detection Instrument	Location of Measuring Instrument (Tag No.)	Instrument Range	Failure State	Expected Range	Instrument Accuracy	Instrument Calibration Method No. and Range
RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	RESERVED

Table III.10.I.D - Maximum Feed-rates to LAW Vitrification System (RESERVED)

Description of Waste	Normal Operation
Dangerous and/or Mixed Waste Feed Rate	
Ash Feed Rate	
Total Chlorine/Chloride Feed Rate	
Total Metal Feedrates	

Table III.10.I.E - LAW Vitrification System Estimated Emission Rates (RESERVED)

Chemicals	CAS Number	Emission Rates (grams /second)

TABLE III.10.I.F - LAW Vitrification System Waste Feed Cut-off Parameters* [1](RESERVED)

Sub-system Designation	Instrument Tag Number	Parameter Description	Set-points During Normal Operation

*A continuous monitoring system shall be used as defined in Permit Section III.10.C.1.

[1]Maximum Feed-rate shall be set based on not exceeding any of the constituent (e.g., metals, ash, and chlorine/chloride) feed limits specified on Table III.10.I.D. of this Permit

III.10.J HLW Vitrification System – Short Term Miscellaneous Thermal Treatment Unit-Shakedown, Demonstration Test, and Post Demonstration Test

For purposes of Permit Section III.10.J, where reference is made to WAC 173-303-640, the following substitutions apply: substituting the terms "HLW Vitrification System" for "tank system(s)," "sub-system(s)" for "tank(s)," "sub-system equipment" for "ancillary equipment," and "sub-system(s) or sub-system equipment of a HLW Vitrification System" for "component(s)," in accordance with WAC 173-303-680.

III.10.J.1. General Conditions During Shakedown, Demonstration Test, and Post-Demonstration Test for HLW Vitrification System

III.10.J.1.a. Construction and Maintenance [WAC 173-303-640, in accordance with WAC 173-303-680(2) and (3), and WAC 173-303-340].

i. The Permittees shall construct the HLW Vitrification System (listed in Permit Tables III.10.J.A and III.10.J.B, as approved/modified pursuant to Permit Condition III.10.J.5.) as specified in Permit Condition III.10.J.1. and Attachment 51, Chapter 4.0 of this Permit, and Attachment 51, Appendices 10.1 through 10.15 and 10.17 of this Permit, as approved pursuant to Permit Conditions III.10.J.5.a. through d., and III.10.J.5.f.

ii. The Permittees shall construct all containment systems for the HLW Vitrification System as specified in Attachment 51, Chapter 4.0 of this Permit, and Attachment 51, Appendices 10.2, 10.4, through 10.14 of this Permit, as approved pursuant to Permit Conditions III.10.J.5.a. through d.

iii. The Permittees shall ensure all certifications required by specialists (e.g., independent, qualified, registered professional engineer, independent corrosion expert, independent qualified installation inspector, etc.) use the following statement or equivalent pursuant to Permit Condition III.10.C.10.:

"I, (Insert Name) have (choose one or more of the following: overseen, supervised, reviewed, and/or certified) a portion of the design or installation of a new HLW Vitrification system or component located at (address), and owned/operated by (name(s)). My duties were: (e.g., installation inspector, testing for tightness, etc.), for the following HLW Vitrification system components (e.g., the venting piping, etc.), as required by the Dangerous Waste Regulations, namely, WAC 173-303-640(3) (applicable paragraphs (i.e., (a) through (g)) in accordance with WAC 173-303-680).

"I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment."

iv. The Permittees must ensure that proper handling procedures are adhered to in order to prevent damage to the HLW Vitrification System during installation. Prior to

covering, enclosing, or placing the new HLW Vitrification System or component in use, an independent, qualified, installation inspector or an independent, qualified, registered professional engineer, either of whom is trained and experienced in the proper installation of similar systems or components, must inspect the system for the presence of any of the following items:

G. Weld breaks;

H. Punctures;

I. Scrapes of protective coatings;

J. Cracks;

K. Corrosion;

L. Other structural damage or inadequate construction/installation.

All discrepancies must be remedied before the HLW Vitrification system is covered, enclosed, or placed in use [WAC 173-303-640(3)(c), in accordance with WAC 173-303-680(2) and (3)].

v. For the HLW Vitrification System or components that are placed underground and that are back-filled, the Permittees must provide a backfill material that is a non-corrosive, porous, homogeneous substance. The backfill must be installed so that it is placed completely around the HLW Vitrification System and compacted to ensure that the HLW Vitrification System is fully and uniformly supported [WAC 173-303-640(3)(d), in accordance with WAC 173-303-680(2) and (3)].

vi. The Permittees must test for tightness the HLW Vitrification System or components, prior to being covered, enclosed, or placed into use. If the HLW Vitrification System or components are found not to be tight, all repairs necessary to remedy the leak(s) in the system must be performed prior to the HLW Vitrification System being covered, enclosed, or placed in use [WAC 173-303-640(3)(e), in accordance with WAC 173-303-680(2) and (3)].

vii. The Permittees must ensure the HLW Vitrification System equipment is supported and protected against physical damage and excessive stress due to settlement, vibration, expansion, or contraction [WAC 173-303-640(3)(f), in accordance with WAC 173-303-680(2) and (3)].

viii. The Permittees must provide the type and degree of corrosion protection recommended by an independent corrosion expert, based on the information provided in Attachment 51, Appendices 10.9 and 10.11 of this Permit, as approved pursuant to Permit Conditions III.10.J.5.b.i., III.10.J.5.b.iv., III.10.J.5.b.v., III.10.J.5.c.i., III.10.J.5.c.iv., III.10.J.5.c.v., III.10.J.5.d.i., III.10.J.5.d.iv., and III.10.J.5.d.v., or other corrosion protection if Ecology believes other corrosion protection is necessary to ensure the integrity of the HLW Vitrification System during use of the HLW Vitrification System. The installation of a corrosion protection system that is field fabricated must be supervised by an independent corrosion expert to ensure proper

installation [WAC 173-303-640(3)(g), in accordance with WAC 173-303-680(2) and (3)].

ix. Prior to initial receipt of dangerous and/or mixed waste in the WTP Unit, the Permittees shall obtain and keep on file in the WTP Unit operating record, written statements by those persons required to certify the design of the HLW Vitrification System and supervise the installation of the HLW Vitrification System, as specified in WAC 173-303-640(3)(b), (c), (d), (e), (f), and (g), in accordance with WAC 173-303-680, attesting that the HLW Vitrification system and corresponding containment system listed in Permit Tables III.10.J.A and III.10.J.B, as approved/modified pursuant to Permit Condition III.10.J.5., were properly designed and installed, and that repairs, in accordance with WAC 173-303-640(3)(c) and (e), were performed [WAC 173-303-640(3)(a) and WAC 173-303-640(3)(h), in accordance with WAC 173-303-680(3)].

x. The independent HLW Vitrification System installation inspection and subsequent written statements shall be certified in accordance with WAC 173-303-810(13)(a), as modified pursuant to Permit Condition III.10.J.1.a.iii., comply with all requirements of WAC 173-303-640(3)(h) in accordance with WAC 173-303-680, and shall consider, but not be limited to, the following LAW Vitrification System installation documentation:

A. Field installation report with date of installation;

B. Approved welding procedures;

C. Welder qualification and certifications;

D. Hydro-test reports, as applicable, in accordance with the American Society of Mechanical Engineers Boiler and Pressure Vessel Code, Section VIII, Division 1; American Petroleum Institute (API) Standard 620, or Standard 650, as applicable;

E. Tester credentials;

F. Field inspector credentials;

G. Field inspector reports;

H. Field waiver reports; and

I. Non-compliance reports and corrective action (including field waiver reports) and repair reports.

xi. The Permittees shall ensure periodic integrity assessments are conducted on the HLW Vitrification System, listed in Permit Table III.10.J.A, as approved/modified pursuant to Permit Condition III.10.J.5., over the term of this Permit, in accordance with WAC 173-303-680(2) and (3) as specified in WAC 173-303-640(3)(b), following the description of the integrity assessment program and schedule in Attachment 51, Chapter 6.0 of this Permit, as approved pursuant to Permit Conditions III.10.J.5.e.i. and III.10.C.5.c. Results of the integrity assessments shall be included in the WTP

Unit operating record until ten (10) years after post-closure, or corrective action is complete and certified, whichever is later.

xii. The Permittees shall address problems detected during the HLW Vitrification System integrity assessments specified in Permit Condition III.10.J.1.a.xi. following the integrity assessment program in Attachment 51, Chapter 6.0 of this Permit, as approved pursuant to Permit Conditions III.10.J.5.e.i. and III.10.C.5.c.

xiii. All process monitors/instruments as specified in Permit Table III.10.J.F, as approved/modified pursuant to Permit Condition III.10.J.5., shall be equipped with operational alarms to warn of deviation, or imminent deviation from the limits specified in Permit Table III.10.J.F.

xiv. The Permittees shall install and test all process and leak detection system monitors/instrumentation as specified in Permit Tables III.10.J.C and III.10.J.F, as approved/modified pursuant to Permit Condition III.10.J.5, in accordance with Attachment 51, Appendices 10.1, 10.2, and 10.14 ~~and 10.15~~ of this Permit, as approved pursuant to Permit Conditions III.10.J.5.d.x. and III.10.J.5.f.xvi.

xv. No dangerous and/or mixed waste shall be treated in the HLW Vitrification System unless the operating conditions, specified under Permit Condition III.10.J.1.c. are complied with.

xvi. The Permittees shall not place dangerous and/or mixed waste, treatment reagents, or other materials in the HLW Vitrification System if these substances could cause the subsystem, subsystem equipment, or the containment system to rupture, leak, corrode, or otherwise fail [WAC 173-303-640(5)(a), in accordance with WAC 173-303-680(2)]. This condition is not applicable to corrosion of HLW Vitrification System sub-system and sub-system equipment that are expected to be replaced as part of normal operations (e.g., melters).

xvii. The Permittees shall operate the HLW Vitrification System to prevent spills and overflows using description of controls and practices as required under WAC 173-303-640(5)(b) described in Permit Condition III.10.C.5, and Attachment 51, Appendix 10.18 of this Permit, as approved pursuant to Permit Condition III.10.J.5.e. [WAC 173-303-640(5)(b), in accordance with WAC 173-303-680(2) and (3), and WAC 173-303-806(4)(c)(ix)].

xviii. For routinely non-accessible HLW Vitrification System sub-systems, as specified in Attachment 51, Chapter 4.0 of this Permit, as updated pursuant to Permit Condition III.10.J.5.e.vi., the Permittees shall mark all routinely non-accessible HLW Vitrification System sub-systems access points with labels or signs to identify the waste contained in each HLW Vitrification System sub-system. The label, or sign, must be legible at a distance of at least fifty (50) feet, and must bear a legend which identifies the waste in a manner which adequately warns employees, emergency response personnel, and the public of the major risk(s) associated with the waste being stored or treated in the HLW Vitrification System sub-systems. For the purposes of this permit condition, “routinely non-accessible” means personnel are

unable to enter these areas while waste is being managed in them [WAC 173-303-640(5)(d), in accordance with WAC 173-303-680(2)].

xix. For all HLW Vitrification System sub-systems not addressed in Permit Condition III.10.J.1.a.xviii., the Permittees shall mark all these HLW Vitrification System sub-systems holding dangerous and/or mixed waste with labels or signs to identify the waste contained in the HLW Vitrification System sub-systems. The labels, or signs, must be legible at a distance of at least fifty (50) feet, and must bear a legend which identifies the waste in a manner which adequately warns employees, emergency response personnel, and the public of the major risk(s) associated with the waste being stored or treated in the HLW Vitrification System sub-systems [WAC 173-303-640(5)(d), in accordance with WAC 173-303-680(2)].

xx. The Permittees shall ensure that the containment systems for the HLW Vitrification System sub-systems listed in Permit Tables III.10.J.A. and III.10.J.B, as approved/modified pursuant to Permit Condition III.10.J.5, are free of cracks or gaps to prevent any migration of dangerous and/or mixed waste or accumulated liquid out of the system to the soil, groundwater, or surface water at any time during use of the HLW Vitrification System sub-systems. Any indication that a crack or gap may exist in the containment systems shall be investigated and repaired in accordance with Attachment 51, Appendix 10.18 of this Permit, as approved pursuant to Permit Condition III.10.J.5.e.v. [WAC 173-303–640(4)(b)(i), WAC 173-303–640(4)(e)(i)(C), and WAC 173-303-640(6), in accordance with WAC 173-303-680(2) and (3), WAC 173-303-806(4)(i)(i)(B), and WAC 173-303-320].

xxi. The Permittees must immediately, and safely, remove from service any HLW Vitrification System or secondary containment system which, through an integrity assessment, is found to be "unfit for use" as defined in WAC 173-303-040, following Permit Conditions III.10.J.1.a.xxiii.A. through D., and F. The affected HLW Vitrification System, or secondary containment system, must be either repaired or closed in accordance with Permit Condition III.10.J.1.a.xxiii.E. [WAC 173-303-640(7)(e) and (f), and WAC 173-303-640(8), in accordance with WAC 173-303-680(3)].

xxii. An impermeable coating, as specified in Attachment 51, Appendices 10.4, 10.5, 10.7, 10.9, 10.11, and 10.12 of this Permit, as approved pursuant to Permit Condition III.10.J.5.b.v., shall be maintained for all concrete containment systems and concrete portions of containment systems for each HLW Vitrification System sub-systems listed in Permit Tables III.10.J.A and III.10.J.B as approved/modified pursuant to Permit Condition III.10.J.5 (concrete containment systems that do not have a liner, pursuant to WAC 173-303-640(4)(e)(i), in accordance with WAC 173-303-680(2), and have construction joints, shall meet the requirements of WAC 173-303-640(4)(e)(ii)(C), in accordance with WAC 173-303-680(2). The coating shall prevent migration of any dangerous and mixed waste into the concrete. All coatings shall meet the following performance standards:

A. The coating must seal the containment surface such that no cracks, seams, or other avenues through which liquid could migrate, are present;

B. The coating must be of adequate thickness and strength to withstand the normal operation of equipment and personnel within the given area such that degradation or physical damage to the coating or lining can be identified and remedied before dangerous and mixed waste could migrate from the system; and

C. The coating must be compatible with the dangerous and mixed waste, treatment reagents, or other materials managed in the containment system [WAC 173-303-640(4)(e)(ii)(D), in accordance with WAC 173-303-680(2) and (3), and WAC 173-303-806(4)(i)(i)(A)].

xxiii. The Permittees shall inspect all containment systems for the HLW Vitrification System sub-systems listed in Permit Tables III.10.J.A and III.10.J.B, as approved/modified pursuant to Permit Condition III.10.J.5., in accordance with the Inspection Schedule specified in Attachment 51, Chapter 6.0 of this Permit, as approved pursuant to Permit Conditions III.10.J.5.e.i. and III.10.C.5.c., and take the following actions if a leak or spill of dangerous and/or mixed waste is detected in these containment systems [WAC 173-303-640(5)(c) and WAC 173-303-640(6), in accordance with WAC 173-303-680(2) and (3), WAC 173-303-320, and WAC 173-303-806(4)(i)(i)(B)]:

A. Immediately, and safely, stop the flow of dangerous and/or mixed waste into the HLW Vitrification System sub-systems or secondary containment system.

B. Determine the source of the dangerous and/or mixed waste.

C. Remove the dangerous and/or mixed waste from the containment area in accordance with WAC 173-303-680(2) and (3), as specified in WAC 173-303-640(7)(b). The dangerous and/or mixed waste removed from containment areas of the HLW Vitrification System sub-systems shall be, as a minimum, managed as mixed waste.

D. If the cause of the release was a spill has not damaged the integrity of the HLW Vitrification System sub-system, the Permittees may return the HLW Vitrification System sub-system to service in accordance with WAC 173-303-680(2) and (3), as specified in WAC 173-303-640(7)(e)(ii). In such case, the Permittees shall take action to ensure the incident that caused the dangerous and/or mixed waste to enter the containment system will not re-occur [WAC 173-303-320(3)].

E. If the source of the dangerous and/or mixed waste is determined to be a leak from the primary HLW Vitrification System into the secondary containment system, or the system is unfit for use as determined through an integrity assessment or other inspection, the Permittees shall comply with the requirements of WAC 173-303-640(7) and take the following actions:

1. Close the HLW Vitrification System Sub-system following procedures in WAC 173-303-640(7)(e)(i), in accordance with WAC 173-303-680 and Attachment 51, Chapter 11.0 of this Permit, as approved pursuant to Permit Condition III.10.C.8., or

2. Repair and re-certify (in accordance with WAC 173-303-810(13)(a), as modified pursuant to Permit Condition III.10.J.1.a.iii.) the HLW Vitrification System in accordance with Attachment 51, Appendix 10.18 of this Permit, as approved pursuant to Permit Condition III.10.J.5.e.v., before the HLW Vitrification System is placed back into service [WAC 173-303-640(7)(e)(iii) and WAC 173-303-640(7)(f), in accordance with WAC 173-303-680].

F. The Permittees shall document, in the WTP Unit operating record, actions/procedures taken to comply with A. through E. above, as specified in WAC 173-303-640(6)(d), in accordance with WAC 173-303-680(2) and (3).

G. In accordance with WAC 173-303-680(2) and WAC 173-303-680 (3), the Permittees shall notify and report releases to the environment to Ecology, as specified in WAC 173-303-640(7)(d).

xxiv. If liquids (e.g., dangerous and/or mixed waste leaks and spills, precipitation, fire water, liquids from damaged or broken pipes) cannot be removed from the secondary containment system within twenty-four (24) hours, Ecology will be verbally notified within twenty-four (24) hours of discovery. The notification shall provide the information in A, B, and C, listed below. The Permittees shall provide Ecology with a written demonstration within seven (7) business days, identifying at a minimum [WAC 173-303-640(4)(c)(iv) and WAC 173-303-640(7)(b)(ii), in accordance with WAC 173-303-680(3) and WAC 173-303-806(4)(i)(i)(B)]:

A. Reasons for delayed removal;

B. Measures implemented to ensure continued protection of human health and the environment;

C. Current actions being taken to remove liquids from secondary containment.

xxv. All air pollution control devices and capture systems in the HLW Vitrification System shall be maintained and operated at all times in a manner so as to minimize the emissions of air contaminants and to minimize process upsets. Procedures for ensuring that the air pollution control devices and capture systems in the HLW Vitrification System are properly operated and maintained so as to minimize the emission of air contaminants and process upsets shall be established.

xxvi. In all future narrative permit submittals, the Permittees shall include HLW Vitrification sub-system names with the sub-system designation.

xxvii. Modifications to approved design, plans, and specifications in Attachment 51 of this Permit for the HLW Vitrification System shall be allowed only in accordance with Permit Conditions III.10.C.2.e. and f., or III.10.C.2.g., III.10.C.9.d., e., and h.

xxviii. For any portion of the HLW Vitrification System that has the potential for formation and accumulation of hydrogen gases, the Permittees shall operate the portion to maintain hydrogen levels below the lower explosive limit [WAC 173-303-815(2)(b)(ii)].

xxix. For each HLW Vitrification System sub-system holding dangerous waste which are acutely or chronically toxic by inhalation, the Permittees shall operate the system to prevent escape of vapors, fumes or other emissions into the air [WAC 173-303-806(4)(i)(i)(B) and WAC 173-303-640(5)(e) in accordance with WAC 173-303-680].

III.10.J.1.b. Performance Standards

i. The HLW Vitrification System must achieve a destruction and removal efficiency (DRE) of 99.99% for the principal organic dangerous constituents (PODCs) listed below [40 CFR §63.1203(c)(1) and 40CFR 63.1203(c)(2), in accordance with WAC 173-303-680(2)].

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DRE in this this Permit condition shall be calculated in accordance with the formula given below:

$DRE=[1-(W_{out}/W_{in})] \times 100\%$

Where:

W_{in}=mass feedrate of one principal organic dangerous constituent (PODC) in a waste feedstream; and

W_{out}=mass emission rate of the same PODC present in exhaust emissions prior to release to the atmosphere.

ii. Particulate matter emissions from the HLW Vitrification System shall not exceed 34 mg/dscm (0.015 grains/dscf) [40 CFR §63.1203(b)(7), in accordance with WAC 173-303-680(2)]:

iii. Hydrochloric acid and chlorine gas emissions from the HLW Vitrification System shall not exceed 21 ppmv, combined [40 CFR §63.1203(b)(6), in accordance with WAC 173-303-680(2)]:

iv. Dioxin and Furan TEQ emissions from the HLW Vitrification System shall not exceed 0.2 nanograms (ng)/dscm [40 CFR §63.1203(b)(1), in accordance with WAC 173-303-680(2)]:

v. Mercury emissions from the HLW Vitrification System shall not exceed 45 µg/dscm, [40 CFR §63.1203(b)(2), in accordance with WAC 173-303-680(2)].

vi. Lead and cadmium emissions from the HLW Vitrification System shall not exceed 120 µg/dscm, combined [40 CFR §63.1203(b)(3), in accordance with WAC 173-303-680(2)].

vii. Arsenic, beryllium, and chromium emissions from the HLW Vitrification System shall not exceed 97 µg/dscm, combined [40 CFR §63.1203(b)(4), in accordance with WAC 173-303-680(2)].

viii. Carbon monoxide (CO) emission from the HLW Vitrification System shall not exceed 100 parts per million (ppm) by volume, over an hourly rolling average (as measured

and recorded by the continuous monitoring system), dry [40 CFR §63.1203(b)(5)(i), in accordance with WAC 173-303-680(2)].

ix. Hydrocarbon emission from the HLW Vitrification System shall not exceed 10 parts per million (ppm) by volume, over an hourly rolling average (as measured and recorded by the continuous monitoring system during demonstration testing required by this Permit), dry basis, and reported as propane [40 CFR §63.1203(b)(5)(ii), in accordance with WAC 173-303-680(2)]:

x. If the emissions from the HLW Vitrification System exceed the emission rates listed in Permit Table III.10.J.E, as approved pursuant to Permit Condition III.10.C.11.b., the Permittees shall notify Ecology, in accordance with Permit Condition III.10.J.3.d.vii. [WAC 173-303-680(2) and (3), and WAC 173-303-815(2)(b)(ii)]**.**

The emission limits specified in Permit Conditions III.10.J.1.b.i. through III.10.J.1.b.x. above, shall be met for the HLW Vitrification System by limiting feed rates as specified in Permit Tables III.10.J.D and III.10.J.F, as approved/modified pursuant to Permit Condition III.10.J.5., compliance with operating conditions specified in Permit Condition III.10.J.1.c. (except as specified in Permit Condition III.10.J.1.b.xii.), and compliance with Permit Condition III.10.J.1.b.xi.

xi. Treatment effectiveness, feed-rates and operating rates for dangerous and mixed waste management units contained in the HLW Building, but not included in Permit Table III.10.J.A, as approved/modified pursuant to Permit Condition III.10.J.5., shall be as specified in Permit Sections III.10.D, III.10.E, III.10.F and consistent with assumptions and basis which are reflected in Attachment 51, Appendix 6.3.1 of this Permit, as approved pursuant to Permit Condition III.10.C.11.b. For the purposes of this permit condition, Attachment 51, Appendix 6.3.1 shall be superceded by Appendix 6.4.1 upon its approval pursuant to either Permit Conditions III.10.C.11.c. or III.10.C.11.d. [WAC 173-303-680(2) and (3), and WAC 173-303-815(2)(b)(ii)].

xii. Compliance with the operating conditions specified in Permit Condition III.10.J.1.c., shall be regarded as compliance with the required performance standards identified in Permit Conditions III.10.J.1.b.i. through x. However, if it is determined that during the effective period of this Permit that compliance with the operating conditions in Permit Condition III.10.J.1.c. is not sufficient to ensure compliance with the performance standards specified in Permit Conditions III.10.J.1.b.i. through x., the Permit may be modified, revoked, or reissued pursuant to Permit Conditions III.10.C.2.e. and III.10.C.2.f., or III.10.C.2.g.

III.10.J.1.c. Operating Conditions [WAC-303-670(6), in accordance with WAC 173-303-680(2)and (3)].

The Permittees shall operate the HLW Vitrification System in accordance with Attachment 51, Chapter 4.0 of this Permit, as updated pursuant to Permit Condition III.10.J.5.e.vi., and Attachment 51, Appendix 10.18 of this Permit, as approved pursuant to Permit Condition III.10.J.5.e., and Attachment 51, Appendix 10.15 of this Permit, as approved pursuant to Permit Condition III.10.J.5.f., except as modified pursuant to Permit Conditions III.10.J.1.b.xii., III.10.J.2., III.10.J.3., III.10.J.4., and in accordance with the following:

i. The Permittees shall operate the HLW Vitrification System in order to maintain the systems and process parameters listed in Permit Tables III.10.J.C and III.10.J.F, as approved/modified pursuant to Permit Condition III.10.J.5., within the set-points specified in Permit Table III.10.J.F.

ii. The Permittees shall operate the AWFCO systems, specified in Permit Table III.10.J.F, as approved/modified pursuant to Permit Condition III.10.J.5., to automatically cut-off and/or lock-out the dangerous and mixed waste feed to the HLW Vitrification System when the monitored operating conditions deviate from the set-points specified in Permit Table III.10.J.F.

iii. The Permittees shall operate the AWFCO systems, specified in Permit Table III.10.J.F, as approved/modified pursuant to Permit Condition III.10.J.5., to automatically cut-off and/or lock-out the dangerous and mixed waste feed to the HLW Vitrification System when all instruments specified on Permit Table III.10.H.F for measuring the monitored parameters fails or exceeds its span value

iv. The Permittees shall operate the AWFCO systems, specified in Permit Table III.10.J.F, as approved/modified pursuant to Permit Condition III.10.J.5., to automatically cut-off and/or lock out the dangerous and/or mixed waste feed to the HLW Vitrification System when any portion of the HLW Vitrification System is bypassed. The terms "bypassed" and "bypass event" as used in Permit Sections III.10.J and III.10.K shall mean if any portion of the HLW Vitrification System is bypassed so that gases are not treated as during the Demonstration Test.

v. In the event of a malfunction of the AWFCO systems listed in Permit Table III.10.J.F, as approved/modified pursuant to Permit Condition III.10.J.5., the Permittees shall immediately, manually cut-off the dangerous and mixed waste feed to the HLW Vitrification System. The Permittees shall not restart the dangerous and/or mixed waste feed until the problem causing the malfunction has been identified and corrected.

vi. The Permittees shall manually cut-off the dangerous and mixed waste feed to the HLW Vitrification System when the operating conditions deviate from the limits specified in Permit Condition III.10.J.1.c.i., unless the deviation automatically activates the waste feed cut-off sequence specified in Permit Conditions III.10.J.1.c.ii., III.10.J.1.c.iii., and/or III.10.J.1.c.iv.

vii. If greater than thirty (30) dangerous and mixed waste feed cut-off, combined, to the HLW Vitrification System occur due to deviations from Permit Table III.10.J.F, as approved/modified pursuant to Permit Condition III.10.J.5., within a sixty (60) day period, the Permittees shall submit a written report to Ecology within five (5) calendar days of the thirty-first exceedance including the information specified below. These dangerous and mixed waste feed cut-offs to the HLW Vitrification System, whether automatically or manually activated, are counted if the specified set-points are deviated from while dangerous waste, mixed waste, and waste residues continue to be processed in the HLW Vitrification System. A cascade event is counted at a frequency of one (1) towards the first waste feed cut-off parameter, specified on Permit Table III.10.J.F, from which the set-point is deviated:

A. The parameter(s) that deviated from the set-point(s) in Permit Table III.10.J.F;

B. The magnitude, dates, and duration of the deviations;

C. Results of the investigation of the cause of the deviations; and,

D. Corrective measures taken to minimize future occurrences of the deviations.

viii. If any portion of the HLW Vitrification System is bypassed while treating dangerous and/or mixed waste, it shall be regarded as non-compliance with the operating conditions specified in Permit Condition III.10.J.1.c. and the performance standards specified in Permit Condition III.10.J.1.b. After such a bypass event, the Permittees shall perform the following actions:

A. Investigate the cause of the bypass event;

B. Take appropriate corrective measures to minimize future bypasses;

C. Record the investigation findings and corrective measures in the operating record; and

D. Submit a written report to Ecology within five (5) days of the bypass event documenting the result of the investigation and corrective measures.

ix. The Permittees shall control fugitive emissions from the HLW Vitrification System by maintaining the melter under negative pressure.

x. Compliance with the operating conditions specified in Permit Condition III.10.J.1.c. shall be regarded as compliance with the required performance standards identified in Permit Condition III.10.J.1.b. However, evidence that compliance with these operating conditions is insufficient to ensure compliance with the performance standards, shall justify modification, revocation, or re-issuance of this Permit, in accordance with Permit Conditions III.10.C.2.e. and III.10.C.2.f., or III.10.C.2.g.

III.10.J.1.d. Inspection Requirements [WAC 173-303-680(3)].

i. The Permittees shall inspect the HLW Vitrification System in accordance with the Inspection Schedules in Attachment 51, Chapter 6.0 of this Permit, as modified in accordance with Permit Condition III.10.C.5.c.

ii. The inspection data for HLW Vitrification System shall be recorded, and the records shall be placed in the WTP Unit operating record for the HLW Vitrification System, in accordance with Permit Condition III.10.C.4.

iii. The Permittees shall comply with the inspection requirements specified in Attachment 51, Appendix 10.15 of this Permit, as approved pursuant to Permit Condition III.10.J.5.f., and as modified by Permit Conditions III.10.J.1.b.xii., III.10.J.2., III.10.J.3., and III.10.J.4.

III.10.J.1.e. Monitoring Requirements [WAC 173-303-670(5), WAC 173-303-670(6), WAC -173-303-670(7), and WAC 173-303-807(2), in accordance with WAC 173-303-680(3)]

i. Upon receipt of a written request from Ecology, the Permittees shall perform sampling and analysis of the dangerous and mixed waste and exhaust emissions to verify that the

operating requirements established in the Permit achieve the performance standards delineated in this Permit.

ii. The Permittees shall comply with the monitoring requirements specified in Attachment 51, Appendices 10.2, 10.3, 10.7, 10.13, 10.15, and 10.18 of this Permit, as approved pursuant to Permit Conditions III.10.J.5.c., III.10.J.5.d., III.10.J.5.e., and III.10.J.5.f., as modified by Permit Conditions III.10.J.1.b.xii., III.10.J.2., III.10.J.3., and III.10.J.4.

iii. The Permittees shall operate, calibrate, and maintain the carbon monoxide and hydrocarbon continuous emission monitors (CEM) specified in this Permit in accordance with Performance Specification 4B and 8A of 40 CFR Part 60, Appendix B, in accordance with Appendix to Subpart EEE of 40 CFR Part 63, and Attachment 51 Appendix 10.15 of this Permit, as approved pursuant to Permit Condition III.10.J.5.f., and as modified by Permit Conditions III.10.J.1.b.xii., III.10.J.2., III.10.J.3., and III.10.J.4.

iv. The Permittees shall operate, calibrate, and maintain the instruments specified on Permit Tables III.10.J.C and F, as approved/modified pursuant to Permit Condition III.10.J.5., in accordance with Attachment 51, Appendix 10.15 of this Permit, as approved pursuant to Permit Condition III.10.J.5.f., and as modified by Permit Conditions III.10.J.1.b.xii., III.10.J.2., III.10.J.3., and III.10.J.4.

III.10.J.1.f. Recordkeeping Requirements [WAC 173-303-380 and WAC 173-303-680(3)]

i. The Permittees shall record and maintain in the WTP Unit operating record for the HLW Vitrification System, all monitoring, calibration, maintenance, test data, and inspection data compiled under the conditions of this Permit, in accordance with Permit Conditions III.10.C.4. and III.10.C.5., as modified by Permit Conditions III.10.J.1.b.xii., III.10.J.2., III.10.J.3., and III.10.J.4.

ii. The Permittees shall record in the WTP Unit operating record the date, time, and duration of all automatic waste feed cut-offs and/or lockouts, including the triggering parameters, reason for the deviation, and recurrence of the incident. The Permittees shall also record all incidents of AWFCO system function failures, including the corrective measures taken to correct the condition that caused the failure.

iii. The Permittees shall submit to Ecology a report semi-annually the first calendar year, and annually thereafter each calendar year within ninety (90) days following the end of the year. The report will include the following information:

A. Total dangerous and mixed waste feed processing time for the HLW Vitrification System;

B. Date/Time of all HLW Vitrification System startups and shutdowns;

C. Date/Time/Duration/Cause/Corrective Action taken for all HLW Vitrification System shutdowns caused by malfunction of either process or control equipment; and

D. Date/Time/Duration/Cause/Corrective Action taken for all instances of dangerous and/or mixed waste feed cut-off due to deviations from Permit Table III.10.J.F, as approved/modified pursuant to Permit Condition III.10.J.5.

iv. The Permittees shall submit an annual report to Ecology each calendar year within ninety (90) days following the end of the year of all quarterly CEM Calibration Error and Annual CEM Performance Specification Tests conducted in accordance with Permit Condition III.10.J.1.e.iii.

III.10.J.1.g. Closure

The Permittees shall close the HLW Vitrification System in accordance with Attachment 51, Chapter 11.0 of this Permit, as approved pursuant to Permit Condition III.10.C.8.

III.10.J.2. Shakedown Period [WAC 173-303-670(5), WAC 173-303-670(6), WAC -173-303-670(7), and WAC 173-303-807(2), in accordance with WAC 173-303-680(2) and (3)].

III.10.J.2.a. The shakedown period for the HLW Vitrification System shall be conducted in accordance with Permit Condition III.10.J.1., Attachment 51, Appendix 10.15 of this Permit, as approved pursuant to Permit Condition III.10.J.5.f., and as modified in accordance with Permit Conditions III.10.J.1.b.xii., III.10.J.2., and III.10.J.3.

III.10.J.2.b. Duration of the Shakedown Period

i. The shakedown period for the HLW Vitrification System shall begin with the initial introduction of dangerous waste in the HLW Vitrification System following construction and shall end with the start of the demonstration test.

ii. The shakedown period shall not exceed the following limits, as defined by hours of operation of the HLW Vitrification System with dangerous waste. The Permittees may petition Ecology for one (1) extension of each shakedown phase for seven hundred and twenty (720) additional operating hours in accordance with permit modification procedures specified in Permit Conditions III.10.C.2.e. and III.10.C.2.f.

Shakedown Phase 1: 720 hours

Shakedown Phase 2: 720 hours

iii. Shakedown Phase 2 shall not be commenced until documentation has been submitted to Ecology verifying that the HLW Vitrification System has operated at a minimum of 75% of the shakedown Phase 1 feed-rate limit for two (2) separate eight (8) consecutive hour periods with no AWFCOs.

III.10.J.2.c. Allowable Waste Feed During the Shakedown Period

i. The Permittees may feed the dangerous waste specified for the HLW Vitrification System on the Part A Forms (Attachment 51, Chapter 1.0 of this Permit), except for those waste outside the waste acceptance criteria specified in the WAP, Attachment 51, Chapter 3.0 of this Permit, as approved pursuant to Permit Condition III.10.C.3., except Permit Conditions III.10.J.2.c.ii. through v. also apply.

ii. The Permittees shall not feed the following waste to the HLW Vitrification System during Shakedown Phase 1:

A. Acutely toxic dangerous waste listed in WAC 173-303-081(a)(2)(a)(i).

B. Mixed waste

iii. The Permittees shall not feed the following waste to the HLW Vitrification System during Shakedown Phase 2:

A. Mixed waste

iv. The feed-rates to the HLW Vitrification System shall not exceed the limits in Permit Tables III.10.J.D and III.10.J.F, as approved/modified pursuant to Permit Condition III.10.J.5.

v. The Permittees shall conduct sufficient analysis of the dangerous waste treated in the HLW Vitrification System to verify that the waste feed is within the physical and chemical composition limits specified in this Permit.

III.10.J.3. Demonstration Test Period [WAC 173-303-670(5), WAC 173-303-670(6), WAC 173-303-670(7), and WAC 173-303-807(2), in accordance with WAC 173-303-680(2) and (3)]

III.10.J.3.a. Demonstration Test Period

i. The Permittees shall operate, monitor, and maintain the HLW Vitrification System as specified in Permit Condition III.10.J.1., and Attachment 51, Appendix 10.15 of this Permit, as approved pursuant to Permit Condition III.10.J.5.f., except as modified in accordance with Permit Conditions III.10.J.1.b.xii. and III.10.J.3.

ii. Attachment 51, Appendix 10.15 of this Permit, as approved pursuant to Permit Condition III.10.J.5.f., shall be re-submitted to Ecology for approval by the Permittees as a permit modification pursuant to Permit Conditions III.10.C.2.e. and III.10.C.2.f. at least one hundred and eighty (180) days prior to the start date of the demonstration test. The revised Demonstration Test Plan shall include applicable EPA promulgated test methods and procedures in effect at the time of the re-submittal and projected commencement and completion dates for the Demonstration Test.

iii. The Permittees shall not commence the demonstration test period until documentation has been submitted to Ecology verifying that the HLW Vitrification System has operated at a minimum of 90% of the demonstration test period feed-rate limit for a minimum of an eight (8) consecutive hours period on two (2) consecutive days.

III.10.J.3.b. Performance Standards

The Permittees shall demonstrate compliance with the performance standards specified in Permit Condition III.10.J.1.b. during the Demonstration Test Period.

III.10.J.3.c. Allowable Waste Feed During the Demonstration Test Period

i. The Permittees may feed the dangerous waste specified for the HLW Vitrification System in Part A Forms (Attachment 51, Chapter 1.0 of this Permit), except for those waste outside the waste acceptance criteria specified in the WAP, Attachment 51, Chapter 3.0 of this Permit, as approved pursuant to Permit Condition III.10.C.3., except Permit Conditions III.10.J.3.c.ii. through iv. also apply.

ii. The Permittees shall not feed mixed waste to the HLW Vitrification System.

iv. The dangerous waste feed-rates to the HLW Vitrification System shall not exceed the limits in Permit Tables III.10.J.D and F, as approved/modified pursuant to Permit Condition III.10.J.5.

v. The Permittees shall conduct sufficient analysis of the dangerous waste treated in the HLW Vitrification System to verify that the dangerous waste is within the physical and chemical composition limits specified in this Permit.

III.10.J.3.d. Demonstration Data Submissions and Certifications

i. The Permittees shall submit a summary of data collected as required during the Demonstration Test to Ecology upon completion of the Demonstration Test. The Permittees shall submit to Ecology a complete demonstration test report within one hundred and twenty (120) calendar days of completion of the Demonstration Test including all data collected during the Demonstration Test and updated Permit Tables III.10.K.D, III.10.K.E, and III.10.K.F.

ii. The Permittees must submit to Ecology a certification that the Demonstration Test has been carried out in accordance with the approved Demonstration Test Plan and approved modifications within thirty (30) days of the completion of the Demonstration Test [WAC 173-303-807(8)].

iii. After successful completion of the Demonstration Test, the Permittees shall be authorized to commence feed of dangerous waste and mixed waste to the HLW Vitrification System - up to 50% of the maximum feed-rates for the post-demonstration test period indicated in Permit Tables III.10.J.D and F, as approved/modified pursuant to Permit Condition III.10.J.5., in compliance with the operating requirements specified in Permit Condition III.10.J.1.c.

iv. After successful completion of the Demonstration Test, Permittees submittal of the following to Ecology, and the Permittees receipt of Ecology approval of the following in writing, the Permittees shall be authorized to commence dangerous waste and mixed waste to the HLW Vitrification System up to 75% of the maximum feed-rates for the post-demonstration test period indicated in Permit Tables III.10.J.D and F, as approved/modified pursuant to Permit Condition III.10.J.5., in compliance with the operating requirements specified in Permit Condition III.10.J.1.c.:

A. Calculations and analytical data showing compliance with the performance standard specified in Permit Condition III.10.J.1.b.i.

v. After successful completion of the Demonstration Test, Permittees submittal of the following to Ecology, and Permittees receipt of Ecology approval of the following in writing, the Permittees shall be authorized to feed dangerous waste and mixed waste to the HLW Vitrification System pursuant to Permit Section III.10.K.

A. A complete Demonstration Test Report for the HLW Vitrification System and updated Permit Tables III.10.K.D, III.10.K.E, and III.10.K.F, as approved/modified pursuant to Permit Conditions III.10.J.5 and III.10.C.11.c. or

III.10.C.11.d., the test report shall be certified in accordance with WAC 173-303-807(8), in accordance with WAC 173-303-680(2) and (3).

B. A Final Risk Assessment Report completed pursuant to Permit Conditions III.10.C.11.c. or III.10.C.11.d.

vi. If any calculations or testing results show that one or more of the performance standards listed in Permit Condition III.10.J.1.b., with the exception of Permit Condition III.10.J.1.b.x., for the HLW Vitrification System were not met during the Demonstration Test, the Permittees shall perform the following actions:

A. Immediately stop dangerous and mixed waste feed to the HLW Vitrification System under the mode of operation that resulted in not meeting the performance standard(s).

B. Verbally notify Ecology within twenty-four (24) hours of discovery of not meeting the performance standard(s) as specified in Permit Condition I.E.21.

C. Investigate the cause of the failure and submit a report of the investigation findings to Ecology within fifteen (15) days of discovery of not meeting the performance standard(s).

D. Submit to Ecology within fifteen (15) days of discovery of not meeting the performance standard(s), documentation supporting a mode of operation where all performance standards listed in Permit Condition III.10.J.1.b., with the exception of Permit Condition III.10.J.1.b.x., for the HLW Vitrification System were met during the demonstration test, if any such mode was demonstrated.

E. Based on the information provided to Ecology by the Permittees, pursuant to Permit Conditions III.10.J.3.d.vi.A through D above, and any additional information, Ecology may submit, in writing, direction to the Permittees to stop dangerous and/or mixed waste feed to the LAW Vitrification System and/or amend the mode of operation the Permittees are allowed to continue operations prior to Ecology approval of a compliance schedule and/or revised Demonstration Test Plan, pursuant to Permit Conditions III.10.J.3.d.vi.F and G.

F. If the performance standard listed in Permit Condition III.10.J.1.b.i. was not met during the Demonstration Test, the Permittees shall submit within one hundred and twenty (120) days of discovery of not meeting the performance standard, a revised Demonstration Test Plan (if appropriate) and a compliance schedule for Ecology approval to address this deficiency. If a revised Demonstration Test Plan is submitted, it shall be accompanied by a request for approval to retest as a permit modification pursuant to Permit Conditions II.10.C.2.e. and III.10.C.2.f. The revised Demonstration Test Plan (if submitted) must include substantive changes to prevent failure from reoccurring.

G. If any of the performance standards listed in Permit Condition III.10.J.1.b., with the exception of Permit Conditions III.10.J.1.b.i. or III.10.J.1.b.x., were not met during the Demonstration Test, the Permittees shall submit to Ecology within one hundred and twenty (120) days of discovery of not meeting the performance

standard(s), a revised Demonstration Test Plan requesting approval to retest as a permit modification pursuant to Permit Conditions II.10.C.2.e. and III.10.C.2.f. The revised Demonstration Test Plan must include substantive changes to prevent failure from reoccurring.

vii. If any calculations or testing results show that any emission rate for any constituent listed in Permit Table III.10.J.E, as approved pursuant to Permit Condition III.10.C.11.b., is exceeded for HLW Vitrification System during the Demonstration Test, the Permittees shall perform the following actions:

A. Verbally notify Ecology within twenty-four (24) hours of the discovery of exceeding the emission rate(s) as specified in Permit Condition I.E.21.

B. Submit to Ecology additional risk information to indicate that the increased emissions impact is offset by decreased emission impact from one or more constituents expected to be emitted at the same time, and/or investigate the cause and impact of the exceedance of the emission rate(s) and submit a report of the investigation findings to Ecology within fifteen (15) days of the discovery of exceeding the emission rate(s); and,

C. Based on the notification and any additional information, Ecology may submit, in writing, direction to the Permittees to stop dangerous and/or mixed waste feed to the HLW Vitrification System and/or to submit a revised Demonstration Test Plan as a permit modification pursuant to Permit Conditions III.10.C.2.e. and III.10.C.2.f., or III.10.C.2.g. The revised Demonstration Test Plan must include substantive changes to prevent failure from reoccurring.

III.10.J.4. Post-Demonstration Test Period [WAC 173-303-670(5), WAC 173-303-670(6), and WAC 173-303-807(2), in accordance with WAC 173-303-680(2) and (3)].

III.10.J.4.a. The Permittees shall operate, monitor, and maintain the HLW Vitrification System as specified in Permit Condition III.10.J.1. and Attachment 51, Appendix 10.15 of this Permit, as approved pursuant to Permit Condition III.10.J.5., except as modified in accordance with Permit Conditions III.10.J.1.b.xii., III.10.J.3., and III.10.J.4.

III.10.J.4.b. Allowable Waste Feed During the Post-Demonstration Test Period

i. The Permittees may feed the dangerous and/or mixed waste specified for the HLW Vitrification System on the Part A Forms (Attachment 51, Chapter 1.0 of this Permit), except for those waste outside the waste acceptance criteria specified in the WAP, Attachment 51, Chapter 3.0 of this Permit, as approved pursuant to Permit Condition III.10.C.3., and except Permit Conditions III.10.J.4.b.ii. and III.10.J.4.b.iii. also apply.

ii. The dangerous waste and mixed waste feed rates to the HLW Vitrification System shall not exceed the limits in Permit Tables III.10.J.D and F, as approved/modified pursuant to Permit Condition III.10.J.5., or in Permit Condition III.10.J.3.

iii. The Permittees shall conduct sufficient analysis of the dangerous waste and mixed waste treated in HLW Vitrification System to verify that the waste feed is within the physical and chemical composition limits specified in this Permit.

III.10.J.5. Compliance Schedules

III.10.J.5.a. All information identified for submittal to Ecology in a. through f. of this compliance schedule must be signed and certified in accordance with requirements in WAC 173-303-810(12), as modified in accordance with Permit Condition III.10.J.1.a.iii. [WAC 173-303-806(4)].

III.10.J.5.b. The Permittees shall submit to Ecology, pursuant to Permit Condition III.10.C.9.f., prior to construction of each secondary containment and leak detection system for the HLW Vitrification System (per level) as identified in Permit Tables III.10.J.A and III.10.J.B, engineering information as specified below, for incorporation into Attachment 51, Appendices 10.2, 10.4, 10.5, 10.7, 10.8, 10.9, 10.11, and 10.12 of this Permit. At a minimum, engineering information specified below will show the following as described in WAC 173-303-640, in accordance with WAC 173-303-680 (the information specified below will include dimensioned engineering drawings and information on sumps and floor drains):

i. IQRPE Reports (specific to foundation, secondary containment, and leak detection system) shall include review of design drawings, calculations, and other information on which the certification report is based and shall include, but not limited to, review of such information described below. Information (drawings, specifications, etc.) already included in Attachment 51, Appendix 10.0 of this Permit, may be included in the report by reference and should include drawing and document numbers. IQRPE Reports shall be consistent with the information separately provided in ii. through ix. below [WAC 173-303-640(3)(a), in accordance with WAC 173-303-680 and WAC 173-303-806(4)(i)(i)];

ii. Design drawings (General Arrangement Drawings, plan and cross sections) and specifications for the foundation, secondary containment including liner installation details, and leak detection methodology. These items should show the dimensions, volume calculations, and location of the secondary containment system, and should include items such as floor/pipe slopes to sumps, tanks, floor drains [WAC 173-303-640(4)(b) through (f) and WAC 173-303-640(3)(a), in accordance with WAC 173-303-680 and WAC 173-303-806(4)(i)(i)];

iii. The Permittees shall provide the design criteria (references to codes and standards, load definitions, and load combinations, materials of construction, and analysis/design methodology) and typical design details for the support of the secondary containment system. This information shall demonstrate the foundation will be capable of providing support to the secondary containment system, resistance to pressure gradients above and below the system, and capable of preventing failure due to settlement, compression, or uplift [WAC 173-303-640(4)(c)(ii), in accordance with WAC 173-303-680(2) and WAC 173-303-806(4)(i)(i)(B)];

iv. A description of materials and equipment used to provide corrosion protection for external metal components in contact with soil, including factors affecting the potential for corrosion [WAC 173-303-640(3)(a)(iii)(B), in accordance with WAC 173-303-680 and WAC 173-303-806(4)(i)(i)(A) through (B)];

v. Secondary containment/foundation, and leak detection system, materials selection documentation (including, but not limited to, concrete coatings and water stops, and liner materials), as applicable [WAC 173-303-806(4)(i)(i)(A) through (B)];

vi Detailed description of how the secondary containment for the HLW Vitrification System will be installed in compliance with WAC 173-303-640(3)(c), in accordance with WAC 173-303-680 and WAC 173-303-806(4)(i)(i)(A) through (B);

vii. Submit Permit Tables III.10.J.B and III.10.K.B completed to provide for all secondary containment sumps and floor drains the information, as specified in each column heading consistent with information to be provided in i. through vi., above;

viii. Documentation that secondary containment and leak detection systems will not accumulate hydrogen gas levels above the lower explosive limit for incorporation into the Administrative Record [WAC 173-303-680, WAC 173-303-806(4)(i)(i)(A), and WAC 173-303-806(4)(i)(v)];

ix. A detailed description of how HLW Vitrification System design provides access for conducting future HLW Vitrification System integrity assessments [WAC 173-303-640(3)(b) and WAC 173-303-806(4)(i)(i)(B)].

III.10.J.5.c. The Permittees shall submit to Ecology pursuant to Permit Condition III.10.C.9.f., prior to installation of each sub-system as identified in Permit Table III.10.J.A, engineering information as specified below, for incorporation into Attachment 51, Appendices 10.1 through 10.14 and 10.17 of this Permit. At a minimum, engineering information specified below will show the following, as required pursuant to WAC 173-303-640, in accordance with WAC 173-303-680 (the information specified below will include dimensioned engineering drawings):

i. IQRPE Reports (specific to sub-system) shall include review of design drawings, calculations, and other information on which the certification report is based and shall include as applicable, but not limited to, review of such information described below. Information (drawings, specifications, etc.) already included in Attachment 51, Appendix 10.0 of this Permit, may be included in the report by reference and should include drawing and document numbers. The IQRPE Reports shall be consistent with the information separately provided in ii. through xii. below and the IQRPE Report specified in Permit Condition III.10.J.5.b. [WAC 173-303-640(3)(a), in accordance with WAC 173-303-680(2) and WAC 173-303-806(4)(i)(i)];

ii. Design drawings [General Arrangement Drawings in plan and cross section, Process Flow Diagrams, Piping and Instrumentation Diagrams, (including pressure control systems), Mechanical Drawings, and specifications, and other information specific to subsystems (to show location and physical attributes of each subsystem specific to miscellaneous units)] [WAC 173-303-640(3)(a), in accordance with WAC 173-303-680(2) and WAC 173-303-806(4)(i)(i)];

iii. Sub-system design criteria (references to codes and, standards, load definitions, and load combinations, materials of construction, and analysis/design methodology) and typical design details to support the sub-systems. Structural support calculations

specific to off-specification, non-standard, and field-fabricated subsystems shall be submitted for incorporation into the Administrative Record. Documentation shall include, but not be limited to, supporting specifications (test data, treatment effectiveness report, etc.), supporting projected operational capability (e.g., WESP projected removal efficiency for individual metals, halogens, particulates, etc.), and compliance with performance standards specified in Permit Condition III.10.J.1.b [WAC 173-303-640(3)(a), in accordance with WAC 173-303-680(2) and WAC 173-303-806(4)(i)(i)(B)];

iv. A description of materials and equipment used to provide corrosion protection for external metal components in contact with water, including factors affecting the potential for corrosion [WAC 173-303-640(3)(a)(iii)(B), in accordance with WAC 173-303-680(2) and WAC 173-303-806(4)(i)(i)(A) through (B)];

v. Sub-system materials selection documentation (e.g., physical and chemical tolerances) [WAC 173-303-640(3)(a), in accordance with WAC 173-303-680(2) and WAC 173-303-806(4)(i)(i)(A)];

vi. Sub-system vendor information (including, but not limited to, required performance warranties, as available), consistent with information submitted under ii. above, shall be submitted for incorporation into the Administrative Record [WAC 173-303-640(3)(a), in accordance with WAC 173-303-680(2), WAC 173-303-806(4)(i)(i)(A) through (B), and WAC 173-303-806(4)(i)(v)];

vii. System descriptions (process) related to sub-system units shall be submitted for incorporation into the Administrative Record [WAC 173-303-680, WAC 173-303-806(4)(i)(i)(A) through (B), and WAC 173-303-806(4)(i)(v)];

viii. Mass and energy balance for normal projected operating conditions used in developing the Piping and Instrumentation Diagrams and Process Flow Diagrams, including assumptions and formulas used to complete the mass and energy balance, so that they can be independently verified for incorporation into the Administrative Record [WAC 173-303-680(2), WAC 173-303-806(4)(i)(i)(B), and WAC 173-303-806(4)(i)(v)];

ix. Detailed description of all potential HLW Vitrification System bypass events including:

A. A report which includes an analysis of credible potential bypass events and recommendations for prevention/minimization of the potential, impact, and frequency of the bypass event to include at a minimum:

1. Operating procedures
2. Maintenance procedures
3. Redundant equipment
4. Redundant instrumentation
5. Alternate equipment
6. Alternate materials of construction

x. A detailed description of how the sub-systems will be installed in compliance with WAC 173-303-640(3)(b), (c), (d), and (e), in accordance with WAC 173-303-680 and WAC 173-303-806(4)(i)(i)(B);

xi. Sub-system design to prevent escape of vapors and emissions of acutely or chronically toxic (upon inhalation) EHW, for incorporation into the Administrative Record [WAC 173-303-640(5)(e), in accordance with WAC 173-303-680, (2), and WAC 173-303-806(4)(i)(i)(B)];

xii. Documentation that sub-systems are designed to prevent the accumulation of hydrogen gases levels above the lower explosive limit for incorporation into the Administrative Record [WAC 173-303-680, WAC 173-303-806(4)(i)(i)(A), and WAC 173-303-806(4)(i)(v)];

III.10.J.5.d. The Permittees shall submit to Ecology, pursuant to Permit Condition III.10.C.9.f., prior to installation of equipment for each sub-system as identified in Permit Tables III.10.J.A and III.10.J.B, not addressed in Permit Conditions III.10.J.5.b. or III.10.J.5.c., engineering information as specified below, for incorporation into Attachment 51, Appendices 10.1 through 10.14 of this Permit. At a minimum, engineering information specified below will show the following as required pursuant to in WAC 173-303-640, in accordance with WAC 173-303-680 (the information specified below will include dimensioned engineering drawings):

i. IQRPE Reports (specific to sub-system equipment) shall include a review of design drawings, calculations, and other information as applicable on which the certification report is based. The reports shall include, but not be limited to, review of such information described below. Information (drawings, specifications, etc.) already included in Attachment 51, Appendix 10.0 of this Permit, may be included in the report by reference and should include drawing and document numbers. The IQRPE Reports shall be consistent with the information provided separately in ii. through ~~xii.~~ xiii.below and the IQRPE Reports specified in Permit Conditions III.10.J.5.b. and III.10.J.5.c. [WAC 173-303-640(3)(a), in accordance with WAC 173-303-680(2) and WAC 173-303-806(4)(I)(I)(A) through (B)];

ii. Design drawings [Process Flow Diagrams, Piping and Instrumentation Diagrams (including pressure control systems), and specifications, and other information specific to equipment (these drawings should include all equipment such as pipes, valves, fittings, pumps, instruments, etc.)] [WAC 173-303-640(3)(a), in accordance with WAC 173-303-680(2) and WAC 173-303-806(4)(i)(i)(A) through (B)];

iii. Sub-system equipment design criteria (references to codes and standards, load definitions and load combinations, materials of construction, and analysis/design methodology) and typical design details for the support of the sub-system equipment. [WAC 173-303-640(3)(a) and WAC 173-303-640(3)(f), in accordance with WAC 173-303-680 and WAC 173-303-806(4)(i)(i)(B)];

iv. A description of materials and equipment used to provide corrosion protection for external metal components in contact with soil and water, including factors affecting

the potential for corrosion [WAC 173-303-640(3)(a)(iii)(B), in accordance with WAC 173-303-680(2) and WAC 173-303-806(4)(i)(i)(A)];

v. Materials selection documentation for equipment for each sub-system (e.g., physical and chemical tolerances) [WAC 173-303-640(3)(a), in accordance with WAC 173-303-680(2) and WAC 173-303-806(4)(i)(i)(A)];

vi. Vendor information (including, but not limited to, required performance warranties, as available), consistent with information submitted under ii. above, for sub-system equipment shall for equipment shall be submitted for incorporation into the Administrative Record [WAC 173-303-640(3)(a), in accordance with WAC 173-303-680(2), WAC 173-303-806(4)(i)(i)(A) through (B), and WAC 173-303-806(4)(i)(iv)];

vii. Sub-system, ~~and~~ sub-system equipment, and leak detection system instrument control logic narrative description (e.g., software functional specifications, descriptions of fail-safe conditions, etc.) [WAC 173-303-680(2), WAC 173-303-806(4)(i)(i)(B), and WAC 173-303-806(4)(i)(v)];

viii. System description (process) related to sub-system equipment, and system descriptions related to leak detection systems, (including instrument control logic and narrative descriptions), for incorporation into the Administrative Record [WAC 173-303-680, WAC 173-303-806(4)(i)(i)(A) through (B), and WAC 173-303-806(4)(i)(v)];

ix. A detailed description of how the sub-system equipment will be installed and tested [WAC 173-303-640(3)(c) through (e) and WAC 173-303-640(4)(b) and (c), in accordance with WAC 173-303-680 and WAC 173-303-806(4)(i)(i)(B)];

x. For process monitoring, ~~and~~ control, and leak detection system instrumentation for the HLW Vitrification System as identified in Permit Tables III.10.J.C. and III.10.J. F., a detailed description of how the process monitoring, ~~and~~ control, and leak detection system instrumentation will be installed and tested [WAC 173-303-640(3)(c) through (e), WAC 173-303-640(4)(b) and (c), WAC 173-303-806(4)(c)(vi), and WAC 173-303-806(4)(i)(i)(B)];

xi. Mass and energy balance for projected normal operating conditions used in developing the Piping and Instrumentation Diagrams and Process Flow Diagrams, including assumptions and formulas used to complete the mass and energy balance, so that they can be independently verified, for incorporation into the Administrative Record [WAC 173-303-680(2), WAC 173-303-806(4)(i)(i)(B), and WAC 173-303-806(4)(i)(v)];

xii. Documentation that sub-systems equipment are designed to prevent the accumulation of hydrogen gas levels above the lower explosive limit into the Administrative Record [WAC 173-303-680, WAC 173-303-806(4)(i)(i)(A), and WAC 173-303-806(4)(i)(v)] [WAC 173-303-815(2)(b)(ii)];

xiii. Leak Detection system documentation (e.g. vendor information etc.) consistent with information submitted under Permit Condition III.10.J.5.c.ii. and Permit Conditions III.10.J.5.d.ii., vii., viii., and x. above, shall be submitted for incorporation into the Administrative Record.

III.10.J.5.e. Prior to initial receipt of dangerous and/or mixed waste in the WTP Unit, the Permittees shall submit to Ecology, pursuant to Permit Condition III.10.C.9.f., the following as specified below for incorporation into Attachment 51, Appendix 10.18 of this Permit, except Permit Condition III.10.J.5.e.i., which will be incorporated into Attachment 51, Chapter 6.0 of this Permit. All information provided under this permit condition must be consistent with information provided pursuant to Permit Conditions III.10.J.5.b., c., d., e., and f., III.10.C.3.e.v., and III.10.C.11.b., as approved by Ecology:

i. Integrity ~~a~~assessment program and schedule for the HLW Vitrification System shall address the conducting of periodic integrity assessments on the HLW Vitrification System over the life of the system, as specified in Permit Condition III.10.J.5.b.ix. and as specified in WAC 173-303-640(3)(b), in accordance with WAC 173-303-680, and descriptions of procedures for addressing problems detected during integrity assessments. The schedule must be based on past integrity assessments, age of the system, materials of construction, characteristics of the waste, and any other relevant factors [WAC 173-303-640(3)(b), in accordance with WAC 173-303-680 and WAC 173-303-806(4)(i)(i)(B)];

ii. Detailed plans and descriptions, demonstrating the leak detection system is operated so that it will detect the failure of either the primary or secondary containment structure or the presence of any release of dangerous and/or mixed waste or accumulated liquid in the secondary containment system within twenty-four (24) hours [WAC 173-303-640(4)(c)(iii)]. Detection of a leak of at least 0.1 gallons per hour within twenty-four (24) hours is defined as being able to detect a leak within twenty-four (24) hours. Any exceptions to this criteria must be approved by Ecology in accordance with WAC 173-303-680, WAC 173-303-640(4)(c)(iii), and WAC 173-303-806(4)(i)(i)(b);

iii. Detailed operational plans and descriptions, demonstrating that spilled or leaked waste and accumulated precipitation liquids can be removed from the secondary containment system within twenty-four (24) hours [WAC 173-303-806(4)(i)(i)(B)];

iv. Descriptions of operational procedures demonstrating appropriate controls and practices are in place to prevent spills and overflows from the HLW Vitrification System or containment systems in compliance with WAC 173-303-640(5)(b)(i) through (iii), in accordance with WAC 173-303-680 and WAC 173-303-806(4)(i)(i)(B);

v. Description of procedures for investigation and repair of the HLW Vitrification System [WAC 173-303–640(6) and WAC 173-303-640(7)(e) and (f), in accordance with WAC 173-303-680, WAC 173-303-320, WAC 173-303-806(4)(ia)(iv), and WAC 173-303-806(4)(a)(ii)(B)];

vi. Updated Chapter 4.0, Narrative Description, Tables and Figures as identified in Permit Tables III.10.J.A and III.10.J.B, as modified pursuant to Permit Condition III.10.H.5.e.x. and updated to identify routinely non-accessible LAW Vitrification sub-systems.

vii. Description of procedures for management of ignitable and reactive, and incompatible dangerous and/or mixed waste as specified in accordance with WAC 173-303-640(9) and (10), in accordance with WAC 173-303-680 and WAC 173-303-806(4)(i)(i)(B).

viii. A description of the tracking system used to track dangerous and/or mixed waste generated throughout the HLW Vitrification System, pursuant to WAC 173-303-380.

ix. Permit Table III.10.J.C and III.10.K.C shall be completed for HLW Vitrification System process and leak detection system monitors and instruments (to include, but not be limited to: instruments and monitors measuring and/or controlling flow, pressure, temperature, density, pH, level, humidity, and emissions) to provide the information as specified in each column heading. Process and leak detection system monitors and instruments for critical systems, as specified in Attachment 51, Appendix 2.0 and as updated pursuant to Permit Condition III.10.C.9.b.and for operating parameters as required to comply with Permit Condition III.10.C.3.e.iii., shall be addressed. Process monitors and instruments for non-waste management operations (e.g., utilities, raw chemical storage, non-contact cooling waters, etc.) are excluded from this permit condition [WAC 173-303-680, WAC 173-303-806(4)(i)(i)(A) through (B), and WAC 173-303-806(4)(i)(v)];

x. Permit Tables III.10.J.A and III.10.K.A amended as follows [WAC 173-303-680 and WAC 173-303-806(4)(i)(i)(A) through (B)]:

A. Under column 1, update and complete list of dangerous and mixed waste HLW Vitrification System sub-systems, including plant items that comprise each system (listed by item number).

B. Under column 2, update and complete system designations.

C. Under column 3, replace the 'Reserved' with Attachment 51, Appendix 10.0 sub-sections (e.g., 10.1, 10.2, etc.) designated in Permit Conditions III.10.J.5.b., c., and d. specific to HLW Vitrification System sub-system, as listed in column 1.

D. Under column 4, update and complete list of narrative description, tables, and figures.

III.10.J.5.f. One hundred and eighty (180) days prior to initial receipt of dangerous and/or mixed waste in the WTP Unit, the Permittees shall submit for review and receive approval for incorporation into Attachment 51, Appendix 10.15 of this Permit, a Demonstration Test Plan for the HLW Vitrification System to demonstrate that the HLW Vitrification Systems meets the performance standards specified in Permit Condition III.10.J.1.b. In order to incorporate the Demonstration Test Plan for the HLW Vitrification System into Attachment 51, Appendix 10.15, Permit Condition III.10.C.2.g. process will be followed. The Demonstration Test Plan shall include, but not be limited to, the following information. The Demonstration Test Plan shall also be consistent with the information provided pursuant to Permit Conditions III.10.J.5.b., c., d. and e., III.10.C.3.e.v. and III.10.C.11.b., as approved by Ecology and consistent with the schedule described in Attachment 51, Appendix 1.0 of this Permit. The documentation required pursuant to Permit Condition III.10.J.5.f.xvi., in

addition to being incorporated into Attachment 51, Appendix 10.15, shall be incorporated by reference in Attachment 51, Chapter 6.0 of this Permit.

Notes: (1) The following should be consulted to prepare this Demonstration Test Plan: "Guidance on Setting Permit Conditions and Reporting Trial Burn Results Volume II of the Hazardous Waste Incineration Guidance Series", and EPA/625/6-89/019 and Risk Burn Guidance For Hazardous Waste Combustion Facilities", EPA-R-01-001, July 2001, WAC 173-303-807(2), WAC 173-303-670(5), WAC-173-303-670(6), 40 CFR §63.1207(f)(2), 40 CFR §63.1209 and Appendix to 40 CFR Part 63 EEE.

(2) Cross-referencing to the information provided pursuant to permit Conditions III.H.5.b., c., d., e. and III.10.C.3.e.v., as approved by Ecology, that are redundant to elements of the Demonstration Test Plan for the HLW Vitrification System is acceptable.

i. Analysis of each feed-stream to be fed during the demonstration test, including dangerous waste, glass formers and reductants, process streams (e.g., control air, process air, steam, sparge bubbler air, air in-leakage from melter cave, and gases from HLW Vitrification Vessel Ventilation System, process water, etc.) that includes:

   A. Levels of ash, levels of metals, total chlorine (organic and inorganic), other halogens and radionuclide surrogates.

   B. Description of the physical form of the feed-streams;

   C. An identification and quantification of organics that are present in the feed-stream, including constituents proposed for DRE demonstration;

   A comparison of the proposed demonstration test feed streams to the mixed waste feed envelopes to be processed in the melter must be provided that documents that the proposed demonstration test feed streams will serve as worst case surrogates for organic destruction, formation of products of incomplete oxidation, and metals, total chlorine (organic and inorganic), other halogens, particulate formation, and radionuclides;

ii. Specification of trial principal organic dangerous constituents (PODCs) for which destruction and removal efficiencies are proposed to be calculated during the demonstration test and for inclusion in Permit Conditions III.10.J.1.b.i. and III.10.K.1.b.i. These trial PODCs shall be specified based on destructibility, concentration or mass in the waste and the dangerous waste constituents or constituents in WAC 173-303-9905;

iii. A description of the blending procedures, prior to introducing the feed-streams into the melter, including analysis of the materials prior to blending, and blending ratios;

iv. A description of how the surrogate feeds are to be introduced for the demonstration. This description should clearly identify the differences and justify how any of differences would impact the surrogate feed introduction as representative of how mixed waste feeds will be introduced;

v. A detailed engineering description of the HLW Vitrification System, including:

   A. Manufacturer's name and model number for each sub-system;

B. Design capacity of each sub-system including documentation (engineering calculations, manufacturer/vendor specifications, operating data, etc.) supporting projected operational efficiencies (e.g., WESP projected removal efficiency for individual metals, halogens, particulates, etc.) and compliance with performance standards specified in Permit Condition III.10.J.1.b.;

C. Detailed scaled engineering drawings, including Process Flow Diagrams, Piping and Instrumentation Diagrams, Vessel Drawings (plan, and elevation with cross sections) and General Arrangement Drawings;

D. Process Engineering Descriptions;

E. Mass and energy balances for each projected operating condition and each demonstration test condition, including assumptions and formulas used to complete mass and energy balances so that they can be independently verified for incorporation into the Administrative Record;

F. Engineering Specifications/data sheets (materials of construction, physical and chemical tolerances of equipment, equipment performance warranties, and fan curves);

G. Detailed Description of Automatic Waste Feed Cut-off System addressing critical operating parameters for all performance standards specified in Permit Condition III.10.J.1.b.

H. Documentation to support compliance with performance standards specified in Permit Condition III.10.J.1.b.**,** including engineering calculations, test data, and manufacturer/vendor's warranties, etc.

I. Detailed description of the design, operation and maintenance practices for air pollution control system.

J. Detailed description of the design, operation, and maintenance practices of any stack gas monitoring and pollution control monitoring system.

K. Documentation based on current WTP Unit design either confirming the Permittees' demonstration that it is not technically appropriate to correct standards listed in Permit Conditions III.J.1.b.ii. through III.J.1.b.ix. to seven percent (7%) oxygen,. or a request, pursuant to Permit Conditions III.10.C.9.e. and II.10.C.9.f., to update Permit Conditions III.J.1.b.ii. through III.J.1.b.ix., III.K.b.ii. through III.K.b.ix., III.K.e.iii., and III.J.1.e.iii., Permit Tables III.10.J.C, III.10.J.F, III.10.K.C., III.10.K.F.and Attachment 51, Appendix 10.0 to reflect the addition of an oxygen monitor and the correction of the standards to seven percent (7%) oxygen.

vi. Detailed description of sampling and monitoring procedures including sampling and monitoring locations in the system, the equipment to be used, sampling and monitoring frequency, and planned analytical procedures for sample analysis including, but not limited to:

A. A short summary narrative description of each stack sample method should be included within the main body of the demonstration test plan, which references an appendix to the plan that would include for each sampling train: (1) detailed sample method procedures, (2) sampling train configuration schematic, (3) sampling recovery flow sheet, (4) detailed analytical method procedures, and (5) sampling preparation and analysis flow sheet. The detailed procedures should clearly flag where the method has provided decision points (e.g., choices of equipment materials of construction, choices of clean-up procedures or whether additional clean-up procedures will be incorporated, whether pretest surveys or laboratory validation work will be performed, enhancements to train to accommodate high moisture content in stack gas, etc.) and what is being proposed along with the basis for the decision.

B. A short summary narrative description of the feed and residue sampling methods should be included within the main body of the demonstration test plan, which references an appendix that would include for each sample type: (1) detailed sample method procedures, (2) sampling recovery/compositing procedures, and (3) detailed analytical method procedures. The detailed procedures should clearly flag where the method has provided decision points (e.g., choices of equipment materials of construction, choices of clean-up procedures or whether additional clean-up procedures will be incorporated, whether pretest surveys or laboratory validation work will be performed, etc.) and what is being proposed along with the basis for the decision.

vii. A detailed test schedule for each condition for which the demonstration test is planned, including projected date(s), duration, quantity of dangerous waste to be fed, and other relevant factors;

viii. A detailed test protocol including, for each test condition, the ranges of feed-rate for each feed system, and all other relevant parameters that may affect the ability of the HLW Vitrification System to meet performance standards specified in Permit Condition III.10.J.1.b.;

ix. A detailed description of planned operating conditions for each demonstration test condition, including operating conditions for shakedown, demonstration test, post-demonstration test and normal operations. This information shall also include submittal of Permit Tables III.10.J.D, III.10.J.F, III.10.K.D, and III.10.K.F completed with the information as specified in each column heading for each HLW Vitrification System waste feed cut-off parameter and submittal of supporting documentation for Permit Tables III.10.J.D, III.10.J.F, III.10.K.D, and III.10.K.F set-point values.

x. The test conditions proposed must demonstrate meeting the performance standards specified in Permit Condition III.10.J.1.b. with the simultaneous operation of the melter at capacity and input from the HLW Vitrification Vessel Ventilation System at capacity to simulate maximum loading to the HLW Vitrification System off-gas treatment system and to establish the corresponding operating parameter ranges.

xi. A detailed description of procedures for start-up and shutdown of waste feed and controlling emissions in the event of an equipment malfunction, including off-normal and emergency shutdown procedures;

xii. A calculation of waste residence time;

xiii. Any request to extrapolate metal feed-rate limits from Demonstration Test levels must include:

A. A description of the extrapolation methodology and rationale for how the approach ensures compliance with the performance standards, as specified in Permit Condition III.10.J.1.b.

B. Documentation of the historical range of normal metal feed-rates for each feedstream.

C. Documentation that the level of spiking recommended during the demonstration test will mask sampling and analysis imprecision and inaccuracy to the extent that extrapolation of feed-rates and emission rates from the Demonstration Test data will be as accurate and precise as if full spiking were used.

xiv. Documentation of the expected levels of constituents in HLW Vitrification System input streams, including, but not limited to, waste feed, glass former and reactants, control air, process air, steam, sparge bubbler air, air in-leakage from melter cave, gases from HLW Vitrification Vessel Ventilation System, and process water.

xv. Documentation justifying the duration of the conditioning required to ensure the HLW Vitrification System had achieved steady-state operations under Demonstration Test operating conditions.

xvi. Documentation of HLW Vitrification System process and leak detection system instruments and monitors as listed on Permit Tables III.10.J.C, III.10.J.F, III.10.K.C, and III.10.K.F to include:

A. Procurement specifications

B. Location used

C. Range, precision, and accuracy

D. Calibration/functionality test procedures (either method number ASTM) or provide a copy of manufacturer's recommended calibration procedures

E. Calibration/functionality test, inspection, and routine maintenance schedules and checklists, including justification for calibration, inspection and maintenance frequencies, criteria for identifying instruments found to be significantly out of calibration, and corrective action to be taken for instruments found to be significantly out of calibration (e.g., increasing frequency of calibration, instrument replacement, etc.).

F. Equipment instrument control logic narrative description (e.g., software functional specifications, descriptions of fail safe conditions, etc.) [WAC 173-303-680(2), WAC 173-303-806(4)(i)(i)(B), and WAC 173-303-806(4)(i)(v)]

xvii. Outline of demonstration test report.

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1 **Table III.10.J.A - HLW Vitrification System Description**

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Sub-system Description	Sub-system Designation	Engineering Description (Drawing Nos., Specification Nos., etc.)	Narrative Description, Tables, and Figures
Melter Feed [a] System –Melter 1	HFP HCP		Section 4.2.4.1; Table 4-5 & 4-11, Figures 4A-1, 4A-4, 4A-26
HLW Melter 1	HMP		Section 4.2.4.2; Figures 4A-1, 4A-4, 4A-27
HLW Glass Product System-Melter 1	HMP		Section 4.2.4.2; Figures 4A-1, 4A-4, 4A-27
Film Cooler - Melter 1	HOP		Section 4.2.4.3; Figures 4A-1, 4A-4, 4A-27
Submerged Bed Scrubber /Condensate Collection Vessels [a] -Melter 1	HOP		Section 4.2.4.3; Table 4-5 & 4-11, Figures 4A-1, 4A-4, 4A-28
Wet Electrostatic Precipitator-Melter 1	HOP		Section 4.2.4.3; Figures 4A-1, 4A-4, 4A-28
High Efficiency Particulate Air Filters	HOP		Section 4.2.4.3; Figures 4A-1, 4A-4, 4A-29
High Efficiency Mist Eliminator	HOP		Section 4.2.4.3; Figures 4A-1, 4A-4, 4A-28
Thermal Catalytical Oxidation Unit	HOP		Section 4.2.4.3; Figures 4A-1, 4A-4, 4A-29
Selective Catalytical Reduction Unit	HOP		Section 4.2.4.3; Figures 4A-1, 4A-4, 4A-29
Silver Mordenite Column	HOP		Section 4.2.4.3; Figures 4A-1, 4A-4, 4A-

Sub-system Description	**Sub-system Designation**	**Engineering Description (Drawing Nos., Specification Nos., etc.)**	**Narrative Description, Tables, and Figures**
			29
Electric Heaters	HOP		Section 4.2.4.3; Figures 4A-1, 4A-4, 4A-29
Heat Exchangers	HOP		Section 4.2.4.3; Figures 4A-1, 4A-4, 4A-29
Pumps	HOP		Section 4.2.4.3; Figures 4A-1, 4A-4, 4A-27, 4A-28, 4A-29
Booster Fans	HOP		Section 4.2.4.3; Figures 4A-1, 4A-4, 4A-29
HLW Stack	HOP		Section 4.2.4.3; Figures 4A-1, 4A-4, 4A-29

a. Requirements pertaining to the tanks in HLW Vitrification System Melter Feed System, Submerged Bed Scrubber/Condensate Vessels are specified in Permit Section III.10.E.

Table III.10.J.B. - HLW Vitrification Systems Secondary Containment Systems Including Sumps and Floor Drains

Sump/Floor Drain I.D.# & Room Location	Maximum Sump Capacity (gallons)	Sump Dimensions (feet) & Materials of Construction	Maximum Allowable Liquid Height (inches)	Secondary Containment Volume (gallons)	Engineering Description (Drawing Nos., Specification Nos., etc.)	~~Leak Detection Type~~
RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	~~RESERVED~~

Table III.10.J.C. - .HLW Vitrification System Process and Leak Detection System Instruments ~~Instrumentation~~ and ~~Process~~ Parameters

Sub-system Locator and Name (including P&ID)	Control Parameter	Type of Measuring or Leak Detection Instrument	Location of Measuring Instrument (Tag No.)	Instrument Range	Expected Range	Fail States	Instrument Accuracy	Instrument Calibration Method No. and Range
RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	RESERVED

Table III.10.J.D. – Maximum Feed-rates to HLW Vitrification System (RESERVED)

Description of Waste	Shakedown 1 and Post Demonstration Test	Shakedown 2 and Demonstration Test
Dangerous and Mixed Waste Feed Rate		
Ash Feed Rate		
Total Chlorine/Chloride Feed Rate		
Total Metal Feedrates		

Table III.10.J.E. - HLW Vitrification System Estimated Emission Rates (RESERVED)

Chemicals	CAS Number	Emission Rates (grams /second)

Table III.10.J.F. - HLW Vitrification System Waste Feed Cut-off Parameters* (RESERVED)

Subsystem Designation	Instrument Tag Number	Parameter Description	Setpoints During Shakedown 1 and Post Demonstration Test	Setpoints During Shakedown 2 and Demonstration Test

*A continuous monitoring system shall be used as defined in Permit Section III.10.C.1.

[1]Maximum Feed-rate shall be set based on not exceeding any of the constituent (e.g., metals, ash, and chlorine/chloride) feed limits specified on Table III.10.J.D. of this Permit

III.10.K HLW Vitrification System – Long Term Miscellaneous Thermal Treatment Unit

For purposes of Permit Section III.10.K, where reference is made to WAC 173-303-640, the following substitutions apply: substitute the terms "HLW Vitrification System" for "tank system(s)," "sub-system(s)" for "tank(s)," "sub-system equipment" for "ancillary equipment," and "sub-system(s) or sub-system equipment of a HLW Vitrification System" for "component(s)," in accordance with WAC 173-303-680.

III.10.K.1 Requirements For HLW Vitrification System Beginning Normal Operation

Prior to commencing normal operations provided in Permit Section III.10.K, all requirements in Permit Section III.10.J shall have been met by the Permittees and approved by Ecology, including the following: The HLW Vitrification System Demonstration Test results and the revised Final Risk Assessment provided for in Permit Conditions III.10.C.11.c. or d. and Permit Section III.10.J, shall have been evaluated and approved by Ecology, Permit Tables III.10.K.D and F, as approved/modified pursuant to Permit Condition III.10.J.5, shall have been completed, submitted and approved pursuant to Permit Condition III.10.J.3.d.v. and Permit Table III.10.K.E, as approved/modified pursuant to Permit Condition III.10.J.5, shall have been completed, submitted and approved pursuant to Permit Conditions III.10.C.11.c. or d.

III.10.K.1.a. Construction and Maintenance [WAC 173-303-640, in accordance with WAC 173-303-680(2) and (3), and WAC 173-303-340]

i. The Permittees shall maintain the design and construction of the HLW Vitrification System as specified in Permit Condition III.10.K.1, Attachment 51, Chapter 4.0 of this Permit, and Attachment 51, Appendices 10.1 through 10.17 of this Permit, as approved pursuant to Permit Conditions III.10.J.5.a. through d. and III.10.J.5.f.

ii. The Permittees shall maintain the design and construction of all containment systems for the HLW Vitrification System as specified in Attachment 51, Chapter 4.0 of this Permit, and Attachment 51, Appendices 10.2 and 10.4 through 10.14 of this Permit, as approved pursuant to Permit Conditions III.10.J.5.a. through d.

iii. Modifications to approved design, plans, and specifications in Attachment 51, of this Permit, for the HLW Vitrification System shall be allowed only in accordance with Permit Conditions III.10.C.2.e. and f., or III.10.C.2.g., III.10.C.9.d., e., and h.

iv. The Permittees shall ensure all certifications required by specialists (e.g., independent, qualified, registered professional engineer; registered, professional engineer; independent corrosion expert; independent, qualified installation inspector; installation inspector; etc.) use the following statement or equivalent pursuant to Permit Condition III.10.C.10:

"I, (Insert Name) have (choose one or more of the following: overseen, supervised, reviewed, and/or certified) a portion of the design or installation of a new HLW Vitrification system or component located at (address), and owned/operated by (name(s)). My duties were: (e.g., installation inspector, testing for tightness, etc.), for the following HLW Vitrification system components (e.g., the venting piping, etc.), as

required by the Dangerous Waste Regulations, namely, WAC 173-303-640(3) (applicable paragraphs [i.e., (a) through (g)]), in accordance with WAC 173-303-680.

"I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment."

v. The Permittees shall ensure periodic integrity assessments are conducted on the HLW Vitrification System listed in Permit Table III.10.I.A, as approved/modified pursuant to Permit Condition III.10.J.5, over the term of this Permit, in accordance with WAC 173-303-680(2) and (3), as specified in WAC 173-303-640(3)(b) following the description of the integrity assessment program and schedule in Attachment 51, Chapter 6.0 of this Permit, as approved pursuant to Permit Conditions III.10.J.5.e.i. and III.10.C.5.c. Results of the integrity assessments shall be included in the WTP Unit operating record until ten (10) years after post-closure, or corrective action is complete and certified, whichever is later.

vi. The Permittees shall address problems detected during the HLW Vitrification System integrity assessments specified in Permit Condition III.10.K.1.a.v. following the description of the integrity assessment program in Attachment 51, Chapter 6.0 of this Permit, as approved pursuant to Permit Conditions III.10.J.5.e.i. and III.10.C.5.c.

vii. All process monitors/instruments as specified in Permit Table III.10.K.F, as approved/modified pursuant to Permit Condition III.10.J.5 and III.10.J.3.d.v., shall be equipped with operational alarms to warn of deviation, or imminent deviation from the limits specified in Permit Table III.10.K.F.

viii. The Permittees shall install and test all process and leak detection system monitors/instruments, as specified in Permit Tables III.10.K.C and III.10.K.F, as approved/modified pursuant to Permit Conditions III.10.J.5 and III.10.J.3.d.v., in accordance with Attachment 51, Appendices 10.1, 10.2, and 10.14 ~~and 10.15~~ of this Permit, as approved pursuant to Permit Conditions III.10.J.5.d.x. and III.10.J.5.f.xvi.

ix. No dangerous and/or mixed waste shall be treated in the HLW Vitrification System unless the operating conditions, specified under Permit Condition III.10.K.1.c. are complied with.

x. The Permittees shall not place dangerous and/or mixed waste, treatment reagents, or other materials in the HLW Vitrification System if these substances could cause the sub-system, sub-system equipment, or the containment system to rupture, leak, corrode, or otherwise fail [WAC 173-303-640(5)(a), in accordance with WAC 173-303-680(2)]. This condition is not applicable to corrosion of HLW Vitrification System sub-system or sub-system equipment that are expected to be replaced as part of normal operations (e.g., melter).

xi. The Permittees shall operate the HLW Vitrification System to prevent spills and overflows using the description of controls and practices as required under WAC 173-303-640(5)(b), described in Permit Condition III.10.C.5, and Attachment 51, Appendix 10.18 of this Permit, as approved pursuant to Permit Condition III.10.J.5.e. [WAC 173-303-640(5)(b), in accordance with WAC 173-303-680(2) and (3), WAC-173-303-806(4)(c)(ix)].

xii. For routinely non-accessible HLW Vitrification System sub-systems, as specified in Attachment 51, Chapter 4.0 of this Permit, as updated pursuant to Permit Condition III.10.J.5.e.vi., the Permittees shall mark all routinely non-accessible HLW Vitrification System sub-systems access points with labels or signs to identify the waste contained in each HLW Vitrification System sub-system. The label, or sign, must be legible at a distance of at least fifty (50) feet, and must bear a legend which identifies the waste in a manner which adequately warns employees, emergency response personnel, and the public of the major risk(s) associated with the waste being stored or treated in the HLW Vitrification System sub-systems. For the purposes of this permit condition, "routinely non-accessible" means personnel are unable to enter these areas while waste is being managed in them [WAC 173-303-640(5)(d), in accordance with WAC 173-303-680(2)].

xiii. For all the HLW Vitrification System sub-systems not addressed in Permit Condition III.10.K.1.a.xii., the Permittees shall mark all these HLW Vitrification System sub-systems holding dangerous and/or mixed waste with labels or signs to identify the waste contained in the HLW Vitrification System sub-systems. The labels, or signs, must be legible at a distance of at least fifty (50) feet, and must bear a legend which identifies the waste in a manner which adequately warns employees, emergency response personnel, and the public of the major risk(s) associated with the waste being stored or treated in the HLW Vitrification System sub-systems [WAC 173-303-640(5)(d), in accordance with WAC 173-303-680(2)].

xiv. The Permittees shall ensure that the secondary containment systems for the HLW Vitrification System sub-systems listed in Permit Tables III.10.K.A and III.10.K.B, as approved/modified pursuant to Permit Condition III.10.J.5, are free of cracks or gaps to prevent any migration of dangerous and/or mixed waste or accumulated liquid out of the system to the soil, groundwater, or surface water at any time during the use of the HLW Vitrification System sub-systems. Any indication that a crack or gap may exist in the containment systems shall be investigated and repaired in accordance with Attachment 51, Appendix 10.18 of this Permit, as approved pursuant to Permit Condition III.10.J.5.e.v. [WAC 173-303–640(4)(b)(i), WAC 173-303-640(4)(e)(i)(C), and WAC 173-303-640(6), in accordance with WAC 173-303-680(2) and (3), WAC 173-303-806(4)(i)(i)(B), and WAC 173-303-320].

xv. The Permittees must immediately and safely remove from service any HLW Vitrification System or secondary containment system which through an integrity assessment is found to be "unfit for use" as defined in WAC 173-303-040, following Permit Condition III.10.K.1.a.xvii.A through D, and F. The affected HLW Vitrification System or secondary containment system must be either repaired or closed

in accordance with Permit Condition III.10.K.1.a.xvii.E [WAC 173-303-640(7)(e) and (f) and WAC 173-303-640(8), in accordance with WAC 173-303-680(3)].

xvi. An impermeable coating, as specified in Attachment 51, Appendices 10.4, 10.5, 10.7, 10.9, 10.11, and 10.12 of this Permit, as approved pursuant to Permit Condition III.10.J.5.b.v., shall be maintained for all concrete containment systems and concrete portions of containment systems for the HLW Vitrification System sub-systems listed in Permit Tables III.10. K.A and III.10.K.B, as approved/modified pursuant to Permit Condition III.10.J.5 (concrete containment systems that do not have a liner, pursuant to WAC 173-303-640(4)(e)(i), in accordance with WAC 173-303-680(2), and have construction joints, shall meet the requirements of WAC 173-303-640(4)(e)(ii)(C), in accordance with WAC 173-303-680(2). The coating shall prevent migration of any dangerous and/or mixed waste into the concrete. All coatings shall meet the following performance standards:

A. The coating must seal the containment surface such that no cracks, seams, or other avenues through which liquid could migrate are present;

B. The coating must be of adequate thickness and strength to withstand the normal operation of equipment and personnel within the given area such that degradation or physical damage to the coating or lining can be identified and remedied before dangerous and/or mixed waste could migrate from the system; and

C. The coating must be compatible with the dangerous and/or mixed waste, treatment reagents, or other materials managed in the containment system [WAC 173-303-640(4)(e)(ii)(D), in accordance with WAC 173-303-680(2) and (3), and WAC 173-303-806(4)(i)(i)(A)].

xvii. The Permittees shall inspect all secondary containment systems for the HLW Vitrification System sub-systems listed in Permit Tables III.10.K.A and III.10.K.B, as approved/modified pursuant to Permit Condition III.10.J.5., in accordance with the Inspection Schedule specified in Attachment 51, Chapter 6.0 of this Permit, as approved pursuant to Permit Conditions III.10.J.5.e.i. and III.10.C.5.c., and take the following actions if a leak or spill of dangerous and/or mixed waste is detected in these containment systems [WAC 173-303-640(5)(c), WAC 173-303-640(6) in accordance with WAC 173-303-680(2) and (3), WAC 173-303-320, and WAC 173-303-806(4)(i)(i)(B)]:

A. Immediately, and safely, stop the flow of dangerous and/or mixed waste into the HLW Vitrification System sub-systems or secondary containment system.

B. Determine the source of the dangerous and/or mixed waste.

C. Remove the dangerous and/or mixed waste from the containment area in accordance with WAC 173-303-680(2) and (3), as specified in WAC 173-303-640(7)(b). The dangerous and/or mixed waste removed from containment areas of the HLW Vitrification System shall be, at a minimum, managed as mixed waste.

D. If the cause of the release was a spill that has not damaged the integrity of the HLW Vitrification System sub-system, the Permittees may return the HLW

Vitrification System sub-system to service in accordance with WAC 173-303-680(2) and (3), as specified in WAC 173-303-640(7)(e)(ii). In such case, the Permittees shall take action to ensure the incident that caused the dangerous and/or mixed waste to enter the containment system will not reoccur.

E. If the source of the dangerous and/or mixed waste is determined to be a leak in from the primary HLW Vitrification System into the secondary containment system, or the system is unfit for use as determined through an integrity assessment or other inspection, the Permittees shall comply with the requirements of WAC 173-303-640(7) and take the following actions:

1. Close the HLW Vitrification System sub-system following procedures in WAC 173-303-640(7)(e)(i), in accordance with WAC 173-303-680, and Attachment 51, Chapter 11.0 of this Permit, as approved pursuant to Permit Condition III.10.C.8; or

2. Repair and re-certify (in accordance with WAC 173-303-810(13)(a), as modified pursuant to Permit Condition III.10.K.1.a.iii.) the HLW Vitrification System, in accordance with Attachment 51, Appendix 10.18 of this Permit, as approved pursuant to Permit Condition III.10.J.5.e.v., before the HLW Vitrification System is placed back into service [WAC 173-303-640(7)(e)(iii) and WAC 173-303-640(7)(f), in accordance with WAC 173-303-680].

F. The Permittees shall document in the operating record actions/procedures taken to comply with A through E above, as specified in WAC 173-303-640(6)(d), in accordance with WAC 173-303-680(2) and (3).

G. In accordance with WAC 173-303-680(2) and (3), the Permittees shall notify and report releases to the environment to Ecology as specified in WAC 173-303-640(7)(d).

xviii. If liquids (e.g., dangerous and/or mixed waste, leaks and spills, precipitation, fire water, liquids from damaged or broken pipes) cannot be removed from the secondary containment system within twenty-four (24) hours, Ecology will be verbally notified within twenty-four (24) hours of discovery. The notification shall provide the information in A, B, and C, listed below. The Permittees shall provide Ecology with a written demonstration within seven (7) business days, identifying at a minimum [WAC 173-303-640(4)(c)(iv) and WAC 173-303-640(7)(b)(ii), in accordance with WAC 173-303-680(3) and WAC 173-303-806(4)(i)(i)(B)]:

A. Reasons for delayed removal;

B. Measures implemented to ensure continued protection of human health and the environment;

C. Current actions being taken to remove liquids from secondary containment.

xix. All air pollution control devices and capture systems in the HLW Vitrification System shall be maintained and operated at all times in a manner so as to minimize the emissions of air contaminants and to minimize process upsets. Procedures for ensuring

that the air pollution control devices and capture systems in the HLW Vitrification System are properly operated and maintained so as to minimize the emission of air contaminants and process upsets shall be established.

xx. In all future narrative permit submittals, the Permittees shall include HLW Vitrification sub-system names with the sub-system designation.

xxi. For any portion of the HLW Vitrification System which has the potential for formation and accumulation of hydrogen gases, the Permittees shall operate the portion to maintain hydrogen levels below the lower explosive limit [WAC 173-303-815(2)(b)(ii)].

xxii. For each HLW Vitrification System sub-system holding dangerous waste which are acutely or chronically toxic by inhalation, the Permittees shall operate the system to prevent escape of vapors, fumes, or other emissions into the air [WAC 173-303-806(4)(i)(i)(B) and WAC 173-303-640(5)(e), in accordance with WAC 173-303-680].

III.10.K.1.b. Performance Standards

i. The HLW Vitrification System must achieve a destruction and removal efficiency (DRE) of 99.99% for the principal organic dangerous constituents (PODCs) listed below [40 CFR §63.1203(c)(1) and 40CFR §63.1203(c)(2), in accordance with WAC 173-303-680(2)]:

RESERVED

DRE in this Permit Condition shall be calculated in accordance with the formula given below:

$DRE=[1-(W_{out}/W_{in})] \times 100\%$

Where:

W_{in}=mass feed-rate of one principal organic dangerous constituent (PODC) in a waste feedstream; and

W_{out}=mass emission rate of the same PODC present in exhaust emissions prior to release to the atmosphere.

ii. Particulate matter emissions from the HLW Vitrification System shall not exceed 34 mg/dscm (0.015 grains/dscf) [40 CFR §63.1203(b)(7), in accordance with WAC 173-303-680(2)];

iii. Hydrochloric acid and chlorine gas emissions from the HLW Vitrification System shall not exceed 21 ppmv, combined [40 CFR §63.1203(b)(6), in accordance with WAC 173-303-680(2)];

iv. Dioxin and Furan TEQ emissions from the HLW Vitrification System shall not exceed 0.2 nanograms (ng)/dscm [40 CFR §63.1203(b)(1), in accordance with WAC 173-303-680(2)];

v. Mercury emissions from the HLW Vitrification System shall not exceed 45 µg/dscm [40 CFR §63.1203(b)(2), in accordance with WAC 173-303-680(2)];

vi. Lead and cadmium emissions from the HLW Vitrification System shall not exceed 120 µg/dscm, combined [40 CFR §63.1203(b)(3), in accordance with WAC 173-303-680(2)];

vii. Arsenic, beryllium, and chromium emissions from the HLW Vitrification System shall not exceed 97 µg/dscm, combined [40 CFR §63.1203(b)(4), in accordance with WAC 173-303-680(2)];

viii. Carbon monoxide (CO) emission from the HLW Vitrification System shall not exceed 100 parts per million (ppm) by volume, over an hourly rolling average (as measured and recorded by the continuous monitoring system), dry basis [40 CFR §63.1203(b)(5)(i), in accordance with WAC 173-303-680(2) and (3)];

ix. Hydrocarbon emission from the HLW Vitrification System shall not exceed 10 parts per million (ppm) by volume, over an hourly rolling average (as measured and recorded by the continuous monitoring system during demonstration testing required by this Permit), dry basis and reported as propane [40 CFR §63.1203(b)(5)(ii), in accordance with WAC 173-303-680(2) and (3)];

x. If the emissions from the HLW Vitrification System exceed the emission rates listed in Permit Table III.10.K.E, as approved pursuant to Permit Condition III.10.C.11.c. or d., the Permittees shall perform the following actions [WAC 173-303-680(2) and (3), and WAC 173-303-815(2)(b)(ii)]:

A. Verbally notify Ecology within twenty-four (24) hours of the discovery of exceeding the emission rate(s) as specified in Permit Condition I.E.21;

B. Submit to Ecology additional risk information to indicate that the increased emissions impact is off-set by decreased emission impact from one or more constituents expected to be emitted at the same time, and/or investigate the cause and impact of the exceedance of the emission rate(s) and submit a report of the investigation findings to Ecology within fifteen (15) days of the discovery of exceeding the emission rate(s); and

C. Based on the notification and any additional information, Ecology may submit, in writing, direction to the Permittees to stop dangerous and/or mixed waste feed to the HLW Vitrification System and/or to submit a revised Demonstration Test Plan as a permit modification pursuant to Permit Conditions III.10.C.2.e. and f., or III.10.C.2.g. The revised Demonstration Test Plan must include substantive changes to prevent failure from reoccurring.

The emission limits specified in Permit Conditions III.10.K.1.b.i. through x. above, shall be met for the HLW Vitrification System by limiting feed rates as specified in Permit Tables III.10.K.D and III.10.K.F, as approved/modified pursuant to Permit Condition III.10.J.5 and III.10.J.3.d.v., compliance with operating conditions specified in Permit Condition III.10.K.1.c. (except as specified in Permit Condition III.10.K.1.b.xii.), and compliance with Permit Condition III.10.K.1.b.xi.

xi. Treatment effectiveness, feed-rates, and operating rates for dangerous and/or mixed waste management units contained in the HLW Building, but not included in Permit

Table III.10.K.A, as approved/modified pursuant to Permit Condition III.10.J.5, shall be as specified in Permit Sections III.10.D, III.10.E, III.10.F and consistent with the assumptions and basis which are reflected in Attachment 51, Appendix 6.3.1 of this Permit, as approved pursuant to Permit Condition III.10.C.11.b. For the purposes of this permit condition, Attachment 51, Appendix 6.3.1 shall be superceded by Appendix 6.4.1 upon its approval pursuant to either Permit Conditions III.10.C.11.c. or d. [WAC 173-303-680(2) and (3), and WAC 173-303-815(2)(b)(ii)].

xii. Compliance with the operating conditions specified in Permit Condition III.10.K.1.c., shall be regarded as compliance with the required performance standards identified in Permit Conditions III.10.K.1.b.i. through x. However, if it is determined that during the effective period of this Permit that compliance with the operating conditions in Permit Condition III.10.K.1.c. is not sufficient to ensure compliance with the performance standards specified in Permit Conditions III.10.K.1.b.i. through x., the Permit may be modified, revoked, or reissued pursuant to Permit Conditions III.10.C.2.e. and f., or III.10.C.2.g.

III.10.K.1.c. Operating Conditions [WAC-303-670(6), in accordance with WAC 173-303-680(2)and (3)]

The Permittees shall operate the HLW Vitrification System in accordance with Attachment 51, Chapter 4.0 of this Permit, as updated pursuant to Permit Condition III.10.J.5.e.vi., Attachment 51, Appendix 10.18 of this Permit, as approved pursuant to Permit Conditions III.10.J.5.e. and f., and Attachment 51, Appendix 10.15 of this Permit, as approved pursuant to Permit Condition III.10.J.5.f., except as modified pursuant to Permit Conditions III.10.J.3, III.10.K.1.b.x., III.10.K.1.b.xii., III.10.K.1.h., and in accordance with and the following:

i. The Permittees shall operate the HLW Vitrification System in order to maintain the systems and process parameters listed in Permit Tables III.10.K.C and III.10.K.F, as approved/modified pursuant to Permit Conditions III.10.J.5 and III.J.3.d.v., within the set-points specified in Permit Table III.10.K.F.

ii. The Permittees shall operate the AWFCO systems, specified in Permit Table III.10.K.F, as approved/modified pursuant to Permit Conditions III.10.J.5 and III.J.3.d.v., to automatically cut-off and/or lock-out the dangerous and/or mixed waste feed to HLW Vitrification System when the monitored operating conditions deviate from the set-points specified in Permit Table III.10.K.F.

iii. The Permittees shall operate the AWFCO systems, specified in Permit Table III.10.K.F, as approved/modified pursuant to Permit Conditions III.10.J.5 and III.J.3.d.v., to automatically cut-off and/or lock-out the dangerous and/or mixed waste feed to HLW Vitrification System when all instruments specified on Permit Table III.10.I.F for measuring the monitored parameters fails or exceeds its span value.

iv. The Permittees shall operate the AWFCO systems, specified in Permit Table III.10.K.F, as approved/modified pursuant to Permit Conditions III.10.J.5 and III.J.3.d.v., to automatically cut-off and/or lock out the dangerous and/or mixed waste feed to the HLW Vitrification System when any portion of the HLW Vitrification System is bypassed. The terms “bypassed” and “bypass event” as used in Permit

Sections III.10.J and K shall mean if any portion of the HLW Vitrification System is bypassed so that gases are not treated as during the Demonstration Test.

v. In the event of a malfunction of the AWFCO systems listed in Permit Table III.10.K.F, as approved/modified pursuant to Permit Conditions III.10.J.5 and III.J.3.d.v., the Permittees shall immediately, manually, cut-off the dangerous and/or mixed waste feed to the HLW Vitrification System. The Permittees shall not restart the dangerous and/or mixed waste feed until the problem causing the malfunction has been identified and corrected.

vi. The Permittees shall manually cut-off the dangerous and/or mixed waste feed to the HLW Vitrification System when the operating conditions deviate from the limits specified in Permit Condition III.10.K.1.c.i., unless the deviation automatically activates the waste feed cut-off sequence specified in Permit Conditions III.10.K.1.c.ii., iii., and/or iv.

vii. If greater than thirty (30) dangerous and/or mixed waste feed cut-off, combined, to the HLW Vitrification System occur due to deviations from Permit Table III.10.K.F, as approved/modified pursuant to Permit Conditions III.10.J.5 and III.J.3.d.v., within a sixty (60) day period, the Permittees shall submit a written report to Ecology within five (5) calendar days of the thirty-first (31) exceedance including the information specified below. These dangerous and/or mixed waste feed cut-offs to the HLW Vitrification System, whether automatically or manually activated, are counted if the specified set-points are deviated from while dangerous and/or mixed waste and waste residues continue to be processed in the HLW Vitrification System. A cascade event is counted at a frequency of one (1) towards the first waste feed cut-off parameter, specified on Permit Table III.10.K.F, from which the set-point is deviated:

A. The parameter(s) that deviated from the set-point(s) in Permit Table III.10.K.F;

B. The magnitude, dates, and duration of the deviations;

C. Results of the investigation of the cause of the deviations; and

D. Corrective measures taken to minimize future occurrences of the deviations.

viii. If greater than thirty (30) dangerous and/or mixed waste feed cut-off, combined, to the HLW Vitrification System occur due to deviations from Permit Table III.10.K.F, as approved/modified pursuant to Permit Conditions III.10.J.5 and III.J.3.d.v., within a thirty (30) day period, the Permittees shall submit the written report required to be submitted pursuant to Permit Condition III.10.K.1.c.vii. to Ecology, on the first business day following the thirty-first exceedance. These dangerous and/or mixed waste feed cut-offs to the HLW Vitrification System, whether automatically or manually activated, are counted if the specified set-points are deviated from while dangerous and/or mixed waste and waste residues continue to be processed in the HLW Vitrification System. A cascade event is counted at a frequency of one (1) towards the first waste feed cut-off parameter, specified on Permit Table III.10.K.F, from which the set-point is deviated:

In accordance with WAC 173-303-680(2) and (3), the Permittees may not resume dangerous and/or mixed waste feed to the HLW Vitrification System until this written report has been submitted; and

A. Ecology has authorized the Permittees, in writing, to resume dangerous and/or mixed waste feed, or

B. Ecology has not, within seven (7) days, notified the Permittees in writing of the following:

1. The Permittees written report does not document that the corrective measures taken will minimize future exceedances; and

2. The Permittees must take further corrective measures and document that these further corrective measures will minimize future exceedances.

ix. If any portion of the HLW Vitrification System is bypassed while treating dangerous and/or mixed waste, it shall be regarded as non-compliance with the operating conditions specified in Permit Condition III.10.K.1.c. and the performance standards specified in Permit Condition III.10.K.1.b. After such a bypass event, the Permittees shall perform the following actions:

A. Investigate the cause of the bypass event;

B. Take appropriate corrective measures to minimize future bypasses;

C. Record the investigation findings and corrective measures in the operating record; and

D. Submit a written report to Ecology within five (5) days of the bypass event documenting the result of the investigation and corrective measures.

x. The Permittees shall control fugitive emissions from the HLW Vitrification System by maintaining the melter under negative pressure.

xi. Compliance with the operating conditions specified in Permit Condition III.10.K.1.c. shall be regarded as compliance with the required performance standards identified in Permit Condition III.10.K.1.b. However, evidence that compliance with these operating conditions is insufficient to ensure compliance with the performance standards, shall justify modification, revocation, or re-issuance of this Permit, in accordance with Permit Conditions III.10.C.2.e. and f., or III.10.C.2.g.

III.10.K.1.d. Inspection Requirements [WAC 173-303-680(3)]

i. The Permittees shall inspect the HLW Vitrification System in accordance with the Inspection Schedules in Attachment 51, Chapter 6.0 of this Permit, as modified in accordance with Permit Condition III.10.C.5.c.

ii. The inspection data for HLW Vitrification System shall be recorded, and the records shall be placed in the WTP Unit operating record for HLW Vitrification System, in accordance with Permit Condition III.10.C.4.

iii. The Permittees shall comply with the inspection requirements specified in Attachment 51, Appendix 10.15 of this Permit, as approved pursuant to Permit Condition III.10.J.5.f., and as modified by Permit Conditions III.10.J.3, III.10.K.1.b.x., III.10.K.1.b.xii., and III.10.K.1.h.

III.10.K.1.e. Monitoring Requirements [WAC 173-303-670(5), WAC 173-303-670(6), WAC 173-303-670(7), and WAC 173-303-807(2), in accordance with WAC 173-303-680(3)]

i. Upon receipt of a written request from Ecology, the Permittees shall perform sampling and analysis of the dangerous and/or mixed waste and exhaust emissions to verify that the operating requirements established in the permit achieve the performance standards delineated in this Permit.

ii. The Permittees shall comply with the monitoring requirements specified in the Attachment 51, Appendices 10.2, 10.3, 10.7, 10.13, 10.15, and 10.18 of this Permit, as approved pursuant to Permit Condition III.10.J.5, and as modified by Permit Conditions III.10.J.3, III.10.K.1.h., and III.10.K.1.b.x. and xii.

iii. The Permittees shall operate, calibrate, and maintain the carbon monoxide and hydrocarbon continuous emission monitors (CEM) specified in this Permit in accordance with Performance Specifications 4B and 8A of 40 CFR Part 60, Appendix B, in accordance with Appendix to Subpart EEE of 40 CFR Part 63, and Attachment 51 Appendix 10.15 of this Permit, as approved pursuant to Permit Condition III.10.J.5.f., and as modified by Permit Conditions III.10.H.3, III.10.K.1.h., and III.10.K.1.b.x. and xii.

iv. The Permittees shall operate, calibrate, and maintain the instruments specified on Permit Tables III.10.K.C and F, as approved/modified pursuant to Permit Conditions III.10.J.5 and III.J.3.d.v., in accordance with Attachment 51, Appendix 10.15 of this Permit, as approved pursuant to Permit Condition III.10.J.5.f., and as modified by Permit Conditions III.10.J.3, III.10.K.1.h., and III.10.K.1.b.x. and xii.

III.10.K.1.f. Recordkeeping Requirements [WAC 173-303-380 and WAC 173-303-680(3)]

i. The Permittees shall record and maintain in the WTP Unit operating record for the HLW Vitrification System, all monitoring, calibration, maintenance, test data, and inspection data compiled under the conditions of this Permit, in accordance with Permit Conditions III.10.C.4 and 5 as modified by Permit Conditions III.10.J.3, III.10.K.1.h., and III.10.K.1.b.x. and xii.

ii. The Permittees shall record in the WTP Unit operating record the date, time, and duration of all automatic waste feed cut-offs and/or lockouts, including the triggering parameters, reason for the deviation, and recurrence of the incident. The Permittees shall also record all incidents of AWFCO system function failures, including the corrective measures taken to correct the condition that caused the failure.

iii. The Permittees shall submit to Ecology an annual report each calendar year within ninety (90) days following the end of the year. The report will include the following information:

A. Total dangerous and/or mixed waste feed processing time for the HLW Vitrification System;

B. Date/Time of all HLW Vitrification System startups and shutdowns;

C. Date/Time/Duration/Cause/Corrective Action taken for all HLW Vitrification System shutdowns caused by malfunction of either process or control equipment; and

D. Date/Time/Duration/Cause/Corrective Action taken for all instances of dangerous and/or mixed waste feed cut-off due to deviations from Permit Table III.10.K.F, as approved/modified pursuant to Permit Conditions III.10.J.5 and III.10J.3.d.v.

iv. The Permittees shall submit an annual report to Ecology each calendar year within ninety (90) days following the end of the year of all quarterly CEM Calibration Error and Annual CEM Performance Specification Tests conducted in accordance with Permit Condition III.10.K.1.e.iii.

III.10.K.1.g. Closure

The Permittees shall close the HLW Vitrification System in accordance with Attachment 51, Chapter 11.0 of this Permit, as approved pursuant to Permit Condition III.10.C.8.

III.10.K.1.h. Periodic Emission Re-testing Requirements [WAC 173-303-670(5), WAC 173-303-670(7), and WAC 173-303-807(2), in accordance with WAC 173-303-680(2) and (3)]

i. Dioxin and Furan Emission Testing

A. Within eighteen (18) months of commencing operation pursuant to Permit Section III.10.K, the Permittees shall submit to Ecology for approval, a Dioxin and Furan Emission Test Plan (DFETP) for the performance of emission testing of the HLW Vitrification System gases for dioxin and furans during "Normal Operating Conditions" as a permit modification in accordance with Permit Conditions III.10.C.2.e. and f. The DFETP shall include all elements applicable to dioxin and furan emission testing included in the "Previously Approved Demonstration Test Plan," applicable EPA promulgated test methods and procedures in effect at the time of the submittal, and projected commencement and completion dates for dioxin and furan emission test. "Normal Operating Conditions" shall be defined for the purposes of this permit condition as follows:

1. Carbon monoxide emissions, dangerous and/or mixed waste feed-rate, and automatic waste feed cut-off parameters specified on Permit Table III.10.K.F (as approved/modified pursuant to Permit Conditions III.10.J.5 and III.10.J.3.d.v), that were established to maintain compliance with Permit Condition III.10.K.1.b.iv., as specified in Attachment 51, Appendix 10.15 of this Permit (as approved pursuant to Permit Condition III.10.J.3.d. and in accordance with III.10.K.1.b.xii. and III.10.K.1.c.xi.), are held within the range of the average value over the previous twelve (12) months and the set-point value specified on Permit Table III.10.K.F. The average value is defined as the sum of the rolling average values recorded over the previous twelve (12) months divided by the number of rolling averages recorded

during that time. The average value shall not include calibration data, malfunction data, and data obtained when not processing dangerous and/or mixed waste; and

2. Feed-rate of metals, ash, and chlorine/chloride are held within the range of the average value over the previous twelve (12) months and the set-point value specified on Permit Table III.10.K.D (as approved/modified pursuant to Permit Conditions III.10.J.5 and III.10.J.3.d.v). Feed-rate of organics as measured by TOC are held within the range of the average value over the previous twelve (12) months. The average value is defined as the sum of the rolling average values recorded over the previous twelve (12) months divided by the number of rolling averages recorded during that time. The average value shall not include data obtained when not processing dangerous and/or mixed waste.

For purposes of this permit Condition, the "Previously Approved Demonstration Test Plan" is defined to include the Demonstration Test Plan approved pursuant to Permit Condition III.10.J.5.f.

B. Within sixty (60) days of Ecology's approval of the DFETP, or within thirty-one (31) months of commencing operation pursuant to Permit Section III.10.K, whichever is later, the Permittees shall implement the DFETP approved, pursuant to Permit Condition III.10.K.1.h.i.A.

C. The Permittees shall resubmit the DFETP, approved pursuant to Permit Condition III.10.K.1.h.i.A, revised to include applicable EPA promulgated test methods and procedures in effect at the time of the submittal, and projected commencement and completion dates for dioxin and furan emission test as a permit modification in accordance with Permit Conditions III.10.C.2.e. and f. at twenty-four (24) months from the implementation date of the testing required pursuant to Permit Condition III.10.K.1.h.i.A and at reoccurring eighteen (18) month intervals from the implementation date of the previously approved DFETP. The Permittees shall implement these newly approved revised DFETPs every thirty-one (31) months from the previous approved DFETP implementation date or within sixty (60) days of the newly Ecology approved revised DFETP, whichever is later, for the duration of this Permit.

D. The Permittees shall submit a summary of operating data collected pursuant to the DFETPs in accordance with Permit Conditions III.10.K.1.h.i.A and C to Ecology upon completion of the tests. The Permittees shall submit to Ecology the complete test report within ninety (90) calendar days of completion of the testing. The test reports shall be certified as specified in WAC 173-303-807(8), in accordance with WAC 173-303-680(2) and (3).

E. If any calculations or testing results collected pursuant to the DFETPs in accordance with Permit Conditions III.10.K.1.h.i.A and C show that one or more of the performance standards listed in Permit Condition III.10.K.1.b., with the exception of Permit Condition III.10.K.1.b.x., for the HLW Vitrification System

were not met during the emission test, the Permittees shall perform the following actions:

1. Immediately stop dangerous and/or mixed waste feed to the HLW Vitrification System under the mode of operation that resulted in not meeting the performance standard(s).

2. Verbally notify Ecology within twenty-four (24) hours of discovery of not meeting the performance standard(s) as specified in Permit Condition I.E.21.

3. Investigate the cause of the failure and submit a report of the investigation findings to Ecology within fifteen (15) days of discovery of not meeting the performance standard(s).

4. Submit to Ecology within fifteen (15) days of discovery of not meeting the performance standard(s) documentation supporting a mode of operation where all performance standards listed in Permit Condition III.K.1.b., with the exception of Permit Condition III.10.K.1.b.x., for the HLW Vitrification System were met during the demonstration test, if any such mode was demonstrated.

5. Based on the information provided to Ecology by the Permittees, pursuant to Permit Conditions III.10.K.1.h.i.E.1 through 4 above, and any additional information, Ecology may submit, in writing, direction to the Permittees to stop dangerous and/or mixed waste feed to the HLW Vitrification System and/or amend the mode of operation the Permittees are allowed to continue operations prior to Ecology approval of the revised Demonstration Test Plan pursuant to Permit Condition III.10. K.1.h.i.E.6.

6. Submit to Ecology within one hundred and twenty (120) days of discovery of not meeting the performance standard(s) a revised Demonstration Test Plan requesting approval to retest as a permit modification pursuant to Permit Conditions III.10.C.2.e. and f. The revised Demonstration Test Plan must include substantive changes to prevent failure from reoccurring reflecting performance under operating conditions representative of the extreme range of normal conditions, and include revisions to Permit Tables III.10.K.D and F.

F. If any calculations or testing results collected pursuant to the DFETPs in accordance with Permit Conditions III.10.K.1.h.i.A and C show that any emission rate for any constituent listed in Permit Table III.10.K.E, as approved/modified pursuant to Permit Conditions III.10.C.11.c. or d., is exceeded for HLW Vitrification System during the emission test, the Permittees shall perform the following actions:

1. Verbally notify Ecology within twenty-four (24) hours of the discovery of exceeding the emission rate(s) as specified in Permit Condition I.E.21;

2. Submit to Ecology additional risk information to indicate that the increased emissions impact is off-set by decreased emission impact from one or more

constituents expected to be emitted at the same time, and/or investigate the cause and impact of the exceedance and submit a report of the investigation findings to Ecology within fifteen (15) days of this discovery of exceeding the emission rate(s); and

3. Based on the notification and any additional information, Ecology may submit, in writing, direction to the Permittees to stop dangerous and/or mixed waste feed to the HLW Vitrification System and/or to submit a revised Demonstration Test Plan as a permit modification pursuant to Permit Conditions III.10.C.2.e. and f., or III.10.C.2.g. The revised Demonstration Test Plan must include substantive changes to prevent failure from reoccurring reflecting performance under operating conditions representative of the extreme range of normal conditions, and include revisions to Permit Tables III.10.K.D and F.

ii. Non-organic Emission Testing

A. Within forty-eight (48) months of commencing operation pursuant to Permit Section III.10.K, the Permittees shall resubmit to Ecology for approval the "Previously Approved Demonstration Test Plan" revised as a permit modification in accordance with Permit Conditions III.10.C.2.e. and f. The revised Demonstration Test Plan (RDTP) shall include applicable EPA promulgated test methods and procedures in effect at the time of the submittal, projected commencement and completion dates for emission testing to demonstrate performance standards specified in Permit Conditions III.10.K.1.b.ii., iii., v., vi., and vii., and non-organic emissions as specified in Permit Table III.10.K.E, as approved/modified pursuant to Permit Conditions III.10.J.3.d. and III.10.C.11.c. or d., under "Normal Operating Conditions." "Normal Operating Conditions" shall be defined for the purposes of this permit condition as follows:

1. Carbon monoxide emissions, dangerous and/or mixed waste feed-rate, and automatic waste feed cut-off parameters specified in Permit Table III.10.K.F, as approved/modified pursuant to Permit Conditions III.10.J.3.d. and III.10.C.11.c. or d., that were established to maintain compliance with Permit Conditions III.10.K.1.b.ii., iii., v., vi., and vii., and non-organic emissions, as specified in Permit Table III.10.K.E, as specified in Attachment 51, Appendix 10.15 of this Permit (as approved pursuant to Permit Conditions III.10.J.3.d. and III.10.C.11.c. or d.), are held within the range of the average value over the previous twelve (12) months and the set-point value specified on Permit Table III.10.K.F. The average value is defined as the sum of the rolling average values recorded over the previous twelve (12) months divided by the number of rolling averages recorded during that time. The average value shall not include calibration data, malfunction data, and data obtained when not processing dangerous and/or mixed waste; and

2. Feed-rate of metals, ash, and chlorine/chloride are held within the range of the average value over the previous twelve (12) months and the set-point value specified on Permit Table III.10.K.D, as approved/modified pursuant to

Permit Conditions III.10.J.3.d. and III.10.C.11.c. or d. The average value is defined as the sum of all rolling average values recorded over the previous twelve (12) months divided by the number of rolling averages recorded during that time. The average value shall not include data obtained when not processing dangerous and/or mixed waste.

For purposes of this permit Condition, the "Previously Approved Demonstration Test Plan" is defined to include the Demonstration Test Plan approved pursuant to Permit Condition III.10.J.5.f.

B. Within sixty (60) days of Ecology's approval of the RDTP, or within sixty (60) months of commencing operation pursuant to Permit Section III.10.K, whichever is later, the Permittees shall implement the RDTP approved pursuant to Permit Condition III.10.K.1.h.ii.A.

C. The Permittees shall resubmit the RDTP, approved pursuant to Permit Condition III.10.K.1.h.ii.A, revised to include applicable EPA promulgated test methods and procedures in effect at the time of the submittal, and projected commencement and completion dates for emission test as a permit modification in accordance with Permit Conditions III.10.C.2.e. and f. at forty-eight (48) months from the implementation date of the testing required pursuant to Permit Condition III.10.K.1.h.ii.A and at reoccurring forty-eight (48) month intervals from the implementation date of the previously approved RDTP. The Permittees shall implement these newly approved revised RDTP, every sixty (60) months from the previous approved RDTP implementation date or within sixty (60) days of the newly Ecology approved revised RDTP, whichever is later, for the duration of this Permit.

D. The Permittees shall submit a summary of operating data collected pursuant to the RDTPs in accordance with Permit Conditions III.10.K.1.h.ii.A and C to Ecology upon completion of the tests. The Permittees shall submit to Ecology the complete test report within ninety (90) calendar days of completion of the testing. The test reports shall be certified pursuant to WAC 173-303-807(8), in accordance with WAC 173-303-680(2) and (3).

E. If any calculations or testing results collected pursuant to the DFETPs in accordance with Permit Conditions III.10.K.1.h.ii.A and C show that any emission rate for any constituent listed in Permit Table III.10.K.E, as approved/modified pursuant to Permit Conditions III.10.J.3.d. and III.10.C.11.c. or d., is exceeded for HLW Vitrification System during the emission test, the Permittees shall perform the following actions:

1. Verbally notify Ecology within twenty-four (24) hours of the discovery of exceeding the emission rate(s) as specified in Permit Condition I.E.21;

2. Submit to Ecology additional risk information to indicate that the increased emissions impact is off-set by decreased emission impact from one or more constituents expected to be emitted at the same time, and/or investigate the cause and impact of the exceedance and submit a report of the investigation

findings to Ecology within fifteen (15) days of this discovery of exceeding the emission rate(s); and

3. Based on the notification and any additional information, Ecology may submit, in writing, direction to the Permittees to stop dangerous and/or mixed waste feed to the HLW Vitrification System and/or to submit a revised Demonstration Test Plan as a permit modification pursuant to Permit Conditions III.10.C.2.e. and f., or III.10.C.2.g. The revised Demonstration Test Plan must include substantive changes to prevent failure from reoccurring reflecting performance under operating conditions representative of the extreme range of normal conditions, and include revisions to Permit Tables III.10.K.D and III.10.K.F.

F. If any calculations or testing results collected pursuant to the DFETPs in accordance with Permit Conditions III.10.K.1.h.ii.A and C show that one or more of the performance standards listed in Permit Condition III.10.K.1.b., with the exception of Permit Condition III.10.K.1.b.x., for the HLW Vitrification System were not met during the emission test, the Permittees shall perform the following actions:

1. Immediately stop dangerous and/or mixed waste feed to the HLW Vitrification System under the mode of operation that resulted in not meeting the performance standard(s).

2. Verbally notify Ecology within twenty-four (24) hours of discovery of not meeting the performance standard(s), as specified in Permit Condition I.E.21.

3. Investigate the cause of the failure and submit a report of the investigation findings to Ecology within fifteen (15) days of discovery of not meeting the performance standard(s).

4. Submit to Ecology within fifteen (15) days of discovery of not meeting the performance standard(s) documentation supporting a mode of operation where all performance standards listed in Permit Condition III.K.1.b., with the exception of Permit Condition III.10.K.1.b.x., for the HLW Vitrification System were met during the demonstration test, if any such mode was demonstrated.

5. Based on the information provided to Ecology by the Permittees pursuant to Permit Conditions III.10.K.1.h.ii.F.1 through 4 above, and any additional information, Ecology may submit, in writing, direction to the Permittees to stop dangerous and/or mixed waste feed to the HLW Vitrification System and/or amend the mode of operation the Permittees are allowed to continue operations prior to Ecology approval of the revised Demonstration Test Plan pursuant to Permit Condition III.10.K.1.h.ii.F.6.

6. Submit to Ecology within one hundred and twenty (120) days of discovery of not meeting the performance standard(s) a revised Demonstration Test Plan requesting approval to retest as a permit modification pursuant to Permit

Conditions III.10.C.2.e. and f. The revised Demonstration Test Plan must include substantive changes to prevent failure from reoccurring reflecting performance under operating conditions representative of the extreme range of normal conditions, and include revisions to Permit Tables III.10.K.D and F.

iii. Other Emission Testing

A. Within seventy-eight (78) months of commencing operation pursuant to Permit Section III.10.K, the Permittees shall resubmit to Ecology for approval the "Previously Approved Demonstration Test Plan" revised as a permit modification in accordance with Permit Conditions III.10.C.2.e. and f. The revised Demonstration Test Plan (RDTP) shall include applicable EPA promulgated test methods and procedures in effect at the time of the submittal, projected commencement and completion dates for emission testing to demonstrate performance standards as specified in Permit Conditions III.10.K.1.b.viii. and ix., and emissions as specified on Permit Table III.10.K.E, as approved/modified pursuant to Permit Conditions III.10.J.3.d. and III.10.C.11.c. or d., not addressed under Permit Conditions III.10.K.1.h.i. or ii. under "Normal Operating Conditions." "Normal Operating Conditions" shall be defined for the purposes of this permit Condition as follows:

1. Carbon monoxide emissions, dangerous and/or mixed waste feed-rate, and automatic waste feed cut-off parameters specified on Permit Table III.10.K.F, as approved/modified pursuant to Permit Condition III.10.J.3.d. and III.10.C.11.c. or d., that were established to maintain compliance with Permit Conditions III.10.K.1.b.viii. and ix., and emissions as specified on Permit Table III.10.K.E, not addressed under Permit Conditions III.10.K.1.h.i. or ii. as specified in Attachment 51, Appendix 10.15 of this Permit, as approved pursuant to Permit Condition III.10.J.3.d., and in accordance with Permit Conditions III.10.K.1.b.xii. and III.10.K.1.c.xi. are held within the range of the average value over the previous twelve (12) months and the set-point value specified on Permit Table III.10.K.F. The average value is defined as the sum of all rolling average values recorded over the previous twelve (12) months divided by the number of rolling averages recorded during that time. The average value shall not include calibration data, malfunction data, and data obtained when not processing dangerous and/or mixed waste; and

2. Feed-rate of metals, ash, and chlorine/chloride are held within the range of the average value over the previous twelve (12) months and the set-point value specified on Permit Table III.10.K.D, as approved/modified pursuant to Permit Conditions III.10.J.3.d. and III.10.C.11.c. or d. Feed-rate of organics as measured by TOC are held within the range of the average value over the previous twelve (12) months. The average value is defined as the sum of the rolling average values recorded over the previous twelve (12) months divided by the number of rolling averages recorded during that time. The average

value shall not include data obtained when not processing dangerous and/or mixed waste.

For purposes of this permit Condition, the "Previously Approved Demonstration Test Plan" is defined to include the Demonstration Test Plan approved pursuant to Permit Condition III.10.J.5.f.

B. Within sixty (60) days of Ecology's approval of the RDTP, or within ninety-one (91) months of commencing operation pursuant to Permit Section III.10.K, whichever is later, the Permittees shall implement the RDTP approved pursuant to Permit Condition III.10.K.1.h.iii.A.

C. The Permittees shall submit a summary of operating data collected pursuant to the RDTPs in accordance with Permit Condition III.10.K.1.h.iii.A to Ecology upon completion of the tests. The Permittees shall submit to Ecology the complete test report within ninety (90) calendar days of completion of the testing. The test reports shall be certified as specified in WAC 173-303-807(8), in accordance with Permit Condition WAC 173-303-680(2) and (3).

D. If any calculations or testing results show that one or more of the performance standards listed in Permit Condition III.10.K.1.b., with the exception of Permit Condition III.10.K.1.b.x., for the HLW Vitrification System were not met during the emission test, the Permittees shall perform the following actions:

1. Immediately stop dangerous and/or mixed waste feed to the HLW Vitrification System under the mode of operation that resulted in not meeting the performance standard(s).

2. Verbally notify Ecology within twenty-four (24) hours of discovery of not meeting the performance standard(s), as specified Permit Condition I.E.21.

3. Investigate the cause of the failure and submit a report of the investigation findings to Ecology within fifteen (15) days of discovery of not meeting the performance standard(s).

4. Submit to Ecology within fifteen (15) days of discovery of not meeting the performance standard(s) documentation supporting a mode of operation where all performance standards listed in Permit Condition III.10.K.1.b., with the exception of Permit Condition III.10.K.1.b.x., for the HLW Vitrification System were met during the demonstration test, if any such mode was demonstrated.

5. Based on the information provided to Ecology by the Permittees pursuant to Permit Conditions III.10.K.1.h.iii.D.1 through 4 above, and any additional information, Ecology may submit, in writing, direction to the Permittees to stop dangerous and/or mixed waste feed to the HLW Vitrification System and/or amend the mode of operation the Permittees are allowed to continue operations prior to Ecology approval of the revised Demonstration Test Plan, pursuant to Permit Condition III.10.K.1.h.iii.D.6.

6. Submit to Ecology within one hundred and twenty (120) days of discovery of not meeting the performance standard(s) a revised Demonstration Test Plan requesting approval to retest as a permit modification pursuant to Permit Conditions II.10.C.2.e. and f. The revised Demonstration Test Plan must include substantive changes to prevent failure from reoccurring reflecting performance under operating conditions representative of the extreme range of normal conditions, and include revisions to Permit Tables III.10.K.D and F.

E. If any calculations or testing results show that any emission rate for any constituent listed in Permit Table III.10.K.E, as approved/modified pursuant to Permit Condition III.10.C.11.c. or d., is exceeded for HLW Vitrification System during the emission test, the Permittees shall perform the following actions:

1. Verbally notify Ecology within twenty-four (24) hours of the discovery of exceeding the emission rate(s) as specified in Permit Condition I.E.21;

2. Submit to Ecology additional risk information to indicate that the increased emissions impact is off-set by decreased emission impact from one or more constituents expected to be emitted at the same time, and/or investigate the cause and impact of the exceedance of the emission rate(s) and submit a report of the investigation findings to Ecology within fifteen (15) days of the discovery of the exceedance of the emission rate(s); and

3. Based on the notification and any additional information, Ecology may submit, in writing, direction to the Permittees to stop dangerous and/or mixed waste feed to the HLW Vitrification System and/or to submit a revised Demonstration Test Plan as a permit modification pursuant to Permit Conditions III.10.C.2.e. and f., or III.10.C.2.g. The revised Demonstration Test Plan must include substantive changes to prevent failure from reoccurring reflecting performance under operating conditions representative of the extreme range of normal conditions, and include revisions to Permit Tables III.10.K.D and F.

Table III.10.K.A - HLW Vitrification System Description

Sub-system Description	Subsystem Designation	Engineering Description (Drawing Nos., Specification Nos., etc.)	Narrative Description, Tables and Figures
Melter Feed [a] System –Melter 1	HFP HCP		Section 4.2.4.1; Table 4-5 & 4-11, Figures 4A-1, 4A-4, 4A-26
HLW Melter 1	HMP		Section 4.2.4.2; Figures 4A-1, 4A-4, 4A-27
HLW Glass Product System-Melter 1	HMP		Section 4.2.4.2; Figures 4A-1, 4A-4, 4A-27
Film Cooler - Melter 1	HOP		Section 4.2.4.3; Figures 4A-1, 4A-4, 4A-27
Submerged Bed Scrubber /Condensate Collection Vessels [a] -Melter 1	HOP		Section 4.2.4.3; Table 4-5 & 4-11, Figures 4A-1, 4A-4, 4A-28
Wet Electrostatic Precipitator-Melter 1	HOP		Section 4.2.4.3; Figures 4A-1, 4A-4, 4A-28
High Efficiency Particulate Air Filters	HOP		Section 4.2.4.3; Figures 4A-1, 4A-4, 4A-29
High Efficiency Mist Eliminator	HOP		Section 4.2.4.3; Figures 4A-1, 4A-4, 4A-28
Thermal Catalytical Oxidation Unit	HOP		Section 4.2.4.3; Figures 4A-1, 4A-4, 4A-29
Selective Catalytical Reduction Unit	HOP		Section 4.2.4.3; Figures 4A-1, 4A-4, 4A-29
Silver Mordenite Column	HOP		Section 4.2.4.3; Figures 4A-1, 4A-4, 4A-29
Electric Heaters	HOP		Section 4.2.4.3; Figures 4A-1, 4A-4, 4A-29
Heat Exchangers	HOP		Section 4.2.4.3; Figures 4A-1, 4A-4, 4A-29
Pumps	HOP		Section 4.2.4.3; Figures 4A-1, 4A-4, 4A-27, 4A-28, 4A-29
Booster Fans	HOP		Section 4.2.4.3; Figures 4A-1, 4A-4, 4A-29
HLW Stack	HOP		Section 4.2.4.3; Figures 4A-1, 4A-4, 4A-29

a. Requirements pertaining to the tanks in HLW Vitrification System Melter Feed System, Submerged Bed Scrubber/Condensate Vessels are specified in Permit Section III.10.E.

Table III.10.K.B - HLW Vitrification System Secondary Containment Systems Including Sumps and Floor Drains

Sump/Floor Drain I.D.# & Room Location	Maximum Sump Capacity (gallons)	Sump Dimensions (feet) & Materials of Construction	Engineering Description (Drawing Nos., Specification Nos., etc.)	~~Leak Detection Type~~
RESERVED	RESERVED	RESERVED	RESERVED	~~RESERVED~~

Table III.10.K.C - HLW Vitrification System Process and Leak Detection System Instruments and ~~Process~~ Parameters

Sub-system Locator and Name (including P&ID)	Control Parameter	Type of Measuring or Leak Detection Instrument	Location of Measuring Instrument (Tag No.)	Instrument Range	Failure State	Expected Range	Instrument Accuracy	Instrument Calibration Method No. and Range
RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	RESERVED

Table III.10.K.D - Maximum Feed-rates to HLW Vitrification System (RESERVED)

Description of Waste	Normal Operation
Dangerous and/or mixed waste Feed Rate	
Ash Feed Rate	
Total Chlorine/Chloride Feed Rate	
Total Metal Feed-rates	

Table III.10.K.E- HLW Vitrification System Estimated Emission Rates (RESERVED)

Chemicals	CAS Number	Emission Rates (grams /second)

TABLE III.10.K.F - HLW Vitrification System Waste Feed Cut-off Parameters* [1](RESERVED)

Sub-system Designation	Instrument Tag Number	Parameter Description	Set-points During Normal Operation

*A continuous monitoring system shall be used as defined in Permit Section III.10.C.1.

[1]Maximum Feed-rate shall be set based on not exceeding any of the constituent (e.g., metals, ash, and chlorine/chloride) feed limits specified on Table III.10.K.D. of this Permit